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ABSTRACT

This report documents the findings of an in-depth study of selected historic schools in the Columbus Public School district in an effort to demonstrate that the renovation of such buildings can achieve a high standard of educational adequacy for a cost that is less than new construction. It includes conceptual design solutions and a budget analysis of each of four schools (Avondale Elementary, Burroughs Elementary, Starling Middle, and East High). It presents conceptual floor plans for each building, showing how the program needs are met within the existing building plus new construction. It also contains architectural renderings to provide visualization of how the finished building could look, with examples of both exeterior and interior images. Also presented are the cost estimates for these conceptual plans, which demonstrated in all four cases that these results could be achieved at a cost that is less than the cost of demolishing the old and building new. (EV)

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# Historic Schools Technical Assistance Consortium

## *Final Report*

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Columbus Landmarks Foundation
Columbus, Ohio

December, 2002

EF 006 282

COLUMBUS PUBLIC SCHOOLS

# Historic Schools Technical Assistance Consortium

## *Final Report*

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Columbus Landmarks Foundation
Columbus, Ohio

December, 2002

Produced with the support of:

NATIONAL TRUST for HISTORIC PRESERVATION

With the support of the Ohio Historical Society's Ohio Historic Preservation Office and the U.S. Department of the Interior's Historic Preservation Fund
OHIO HISTORICAL SOCIETY

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Appreciation is extended also to Columbus Public Schools Superintendent Dr. Gene Harris and her staff for their support and assistance over the course of this project.

Judith B. Williams, Project Coordinator, wrote this report. Special thanks to Barbara Powers of the Ohio Historic Preservation Office for providing historic descriptions of the four schools.

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# Introduction



The Columbus Landmarks Foundation established the Historic Schools Technical Assistance Consortium in July, 2002. Comprised of professional architects, landscape architects, engineers, construction managers and educational planners, this group of individuals volunteered their time and expertise to assist in this community effort, representing a contribution valued at over $90,000. The Consortium's goal was to conduct an in-depth study of selected historic schools in the Columbus Public School district in an effort to demonstrate that the renovation of such buildings can achieve a high standard of educational adequacy for a cost that is less than new construction. This report presents the findings of that study.

The city of Columbus has a rich collection of historic school buildings that are neighborhood and community landmarks, having been commissioned by the school district during important building campaigns of the late 19th century and first half of the 20th century. A 2001 Columbus Landmarks Foundation study found that fully one-third of the Columbus Public School district's inventory of 144 school buildings are considered historically significant. Despite their historic or architectural significance, however, many of the city's older school buildings are in disrepair, are inaccessible to the handicapped, and need updated capacity for technology, heating and cooling. A number of the schools are undersized for their current enrollment, with modular buildings used as classrooms on the school grounds. Like many urban school districts, Columbus is faced with rising costs and an inadequate tax base to support sweeping building improvements within the district.

The Ohio School Facilities Commission's Funding Program

In 1997, the Ohio School Facilities Commission (OSFC) was established by the Ohio General Assembly "to provide funding, management oversight, and technical assistance to local school districts for construction and renovation of school facilities in order to provide an appropriate learning environment for Ohio's school children." (source: Columbus Public Schools Master Facilities Plan executive summary). Funds were appropriated at an initial level of $300 million for school construction aid to local districts on a matching grant basis. This amount was increased to $10.2 billion to rebuild Ohio's schools in 1999. Shortly after, Columbus Public Schools began developing a Master Facilities Plan that would guide its efforts to replace or renovate schools under the OSFC funding program.

Key to development of Columbus' Master Facilities Plan was an initial condition assessment of all school buildings in the district that was undertaken at the direction of OSFC. This was completed during 2001, with the objective being to provide cost estimates for the renovation of each building, including upgrading or replacement of major building systems.

The assessment also evaluated the overall physical conditions and educational adequacy of the facilities. Under OSFC guidelines, if the estimated cost of a renovated facility is calculated to be more than two-thirds of the cost of a newly-constructed replacement facility, then the state will not contribute to the renovation. Known as the *2/3 Guideline*, this calculation is the initial measuring stick by which decisions are made in Ohio's school districts to renovate or replace school buildings under the state's school funding program.

## Columbus Landmarks Foundation's Role

Columbus Landmarks Foundation, as a non-profit organization advocating preservation and quality new design, forged a partnership with Columbus Public Schools during the initial planning process. The organization has worked closely with Columbus Public Schools since that time to identify, evaluate and participate in discussions about the district's historically significant school buildings. CLF participated in the Columbus Public Schools Facilities Steering Committee that worked to formulate the facilities master plan. Representatives met with school board members, the Columbus Education Association, Children's Defense Fund, Mayor's Office of Education, and others to express interest in seeing historic schools preserved and reused. The work of the Technical Assistance Consortium is part of that continuing effort, focusing on demonstrating how existing school buildings can be renovated to create a high quality environment for teaching and learning.

Through its community input and planning process, Columbus Public Schools has demonstrated an understanding of the important role that the historic schools have in the community. Its Master Facilities Plan states: "The Columbus community acknowledges the importance of maintaining community identity and cultural history through the preservation of buildings. It is recommended that consideration be given to preserving school facilities having significant architectural and historic attributes in a way that retains their historical character and architectural integrity, while providing appropriate educational facilities." The report goes on to say, "While the OSFC guidelines require that schools be replaced if the renovation cost exceeds 2/3 the cost of a new building, retaining buildings of historic importance that serve as landmarks in their communities will be considered, if: the structure is sound; the building can be brought to 21st century education standards; the community supports it; and the renovation cost to the State and District does not exceed the cost of a new building."

In response to the community desire to maintain historic schools, the district identified 11 schools that were scheduled for replacement based on the 2001 assessment, but would be considered for renovation if the estimated cost could be determined not to exceed the cost of a new building. Working with OSFC, the Columbus Public Schools administration, and the district's executive architect (known as the Columbus School Design Association or CSDA), Columbus Landmarks formed the Historic Schools Technical Assistance Consortium to take on this task.

The Consortium had the general goal of providing technical assistance to Columbus Public Schools regarding the renovation of historic schools under OSFC funding guidelines. Specifically, the Consortium studied four schools in-depth in an effort to demonstrate that historic schools could be successfully renovated to achieve a high and equitable standard of educational adequacy at a cost less than new construction. As a demonstration project, the study presents conceptual designs for each school with the

intent that the design solutions will be applicable to other buildings of similar age, style, plan and construction. In tandem with the volunteer Consortium's work, the CSDA studied the other seven school buildings in the group of 11.

The Findings Report

This report documents the findings of the Technical Assistance Consortium, including conceptual design solutions and a budget analysis of each of the four schools. It provides a discussion of the methodology used to evaluate the buildings and identifies design solutions that were used to accommodate all of the requirements of Columbus Public Schools and the Ohio School Facilities Commission. It presents conceptual floor plans for each building, showing how the program needs are met within the existing building plus new construction. It also contains architectural renderings to provide visualization of how the finished building could look, with examples of both exterior and interior images. Also presented are the cost estimates for these conceptual plans, which demonstrated in all four cases that these results could be achieved at a cost that is less than the cost of demolishing the old and building new.

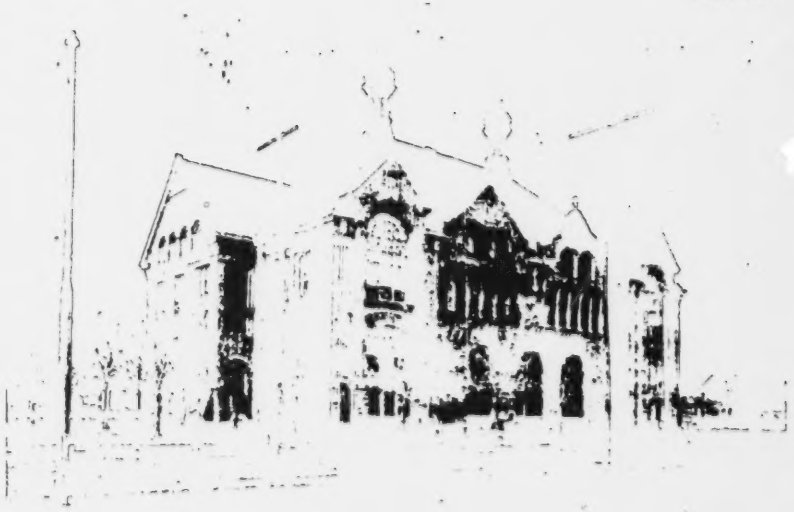
These findings should be considered a beginning, rather than an end. As a result of this study and the work of Columbus Public Schools administrators and CSDA, the Columbus Board of Education voted on October 15, 2002, to move 10 of the 11 historic schools on the list from "replacement" to "renovate/ add" in the Master Facilities Plan. On November 5, 2002, the citizens of Columbus agreed to a bond issue that will pay for the first two phases of the Columbus Public Schools expansive program to repair, renovate or replace 144 schools. It is hoped that the results of this study will be used not only to benefit the 10 buildings that will now be saved, but also to help guide approaches to renovation of other historic schools, in Columbus and elsewhere.

# The Four Schools Studied

## Avondale Elementary School

Built 1894

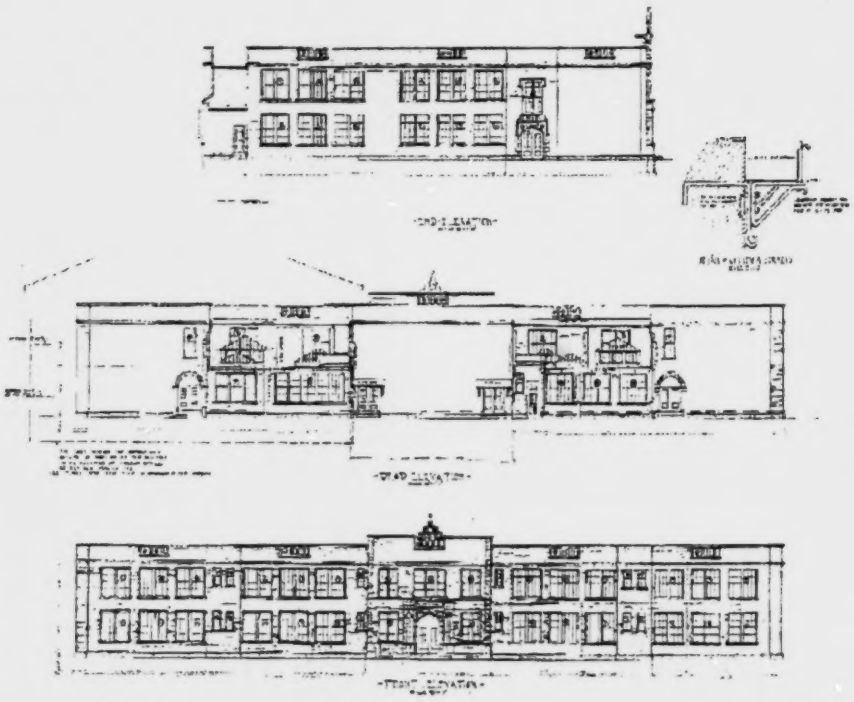
Avondale Elementary School, built in 1894, is the design of David Riebel, the first School Architect for the Columbus school system. During his tenure from 1893 until 1922, Riebel designed over 40 schools.



Avondale is an example of his use of the Richardsonian Romanesque style to create an impressive three-story masonry building featuring raised stone basement, round arched windows and entrances, and large stone trimmed dormers punctuating the massive hip roof. The imposing size, use of substantial materials, and distinctive character of Avondale reflect the importance education played in community – the school has a strong visual presence in its surrounding residential neighborhood. The enduring quality of the school's design was mentioned in a 1954 issue of the *Dispatch* covering renovations being made to the building. The newspaper's captioned photo of Avondale stated "In many such old school buildings in Columbus, solid construction and interesting architectural details of another era lend themselves to modern school use."

## Burroughs Elementary School

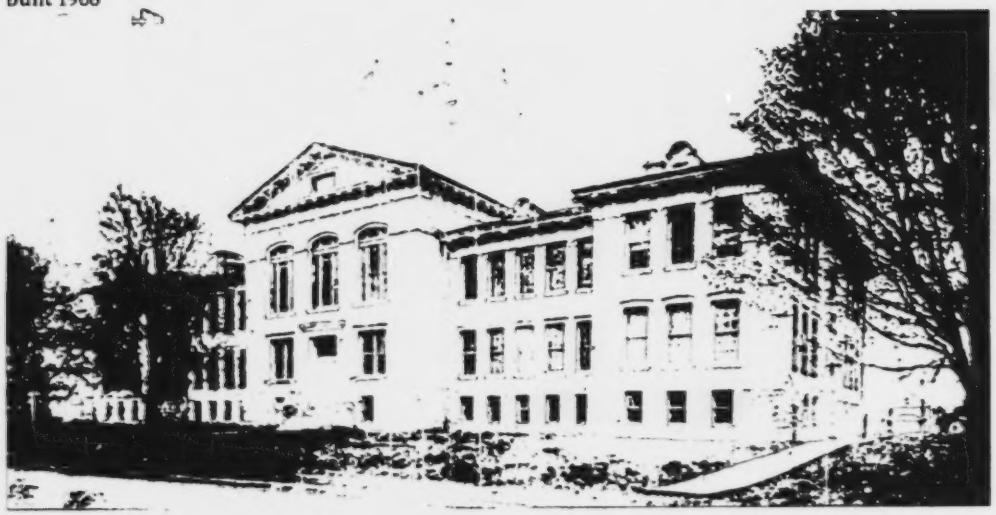
Following World War I, Columbus Public Schools faced the challenges of a growing student population and much-needed repair and expansion of school buildings. To meet these needs a $10 million building campaign was carried out in the 1920s. Between 1921 and 1929, 16 new schools were constructed. In 1921 the Burroughs Elementary School was one of the first of these schools completed, being the first school built since 1916. The school's Jacobethan Revival style reflects the quality of architectural design associated with the schools built during this period. The contrasting red brick with Gothic style stone trim and architectural details and tudor-arched entrance with "John Burroughs School" carved in old English script over the door reflect the Jacobethan Revival style of the building. The Jacobethan Revival style school was a standardized plan that was repeated with Pilgrim Elementary in 1922.

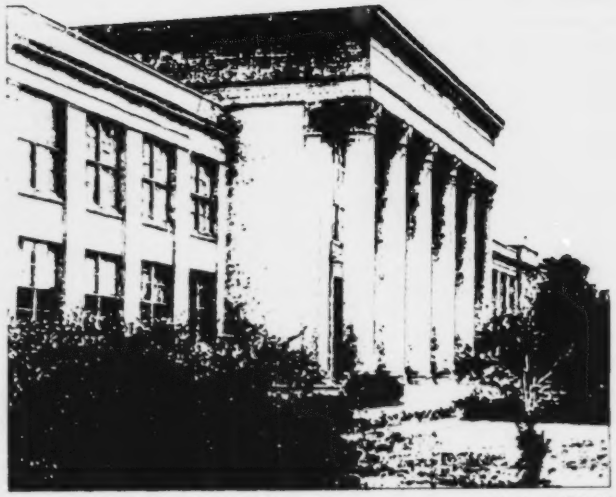


## Starling Middle School

The current building for Starling Middle School was built in 1908 as the first West High School. Designed by David Riebel, the Classical Revival style school displays his use of a symmetrical two-story form with raised basement, gabled roof, and classically-detailed center entrance balanced by end projections. Named for Lynn Starling, a historic figure associated with the development of Franklinton, the middle school, first housed in a portion of Avondale Elementary, was part of the district-wide expansion of the junior high school concept in the early 1900s prior to World War I. In 1908 Columbus was a national leader in launching the first junior high school for the middle grades between elementary and high school. In 1924, Starling Middle School occupied the south wing of the then new Central High School. Following completion of the new West High School, Starling Middle School moved to the current building on Central Avenue.

Built 1908





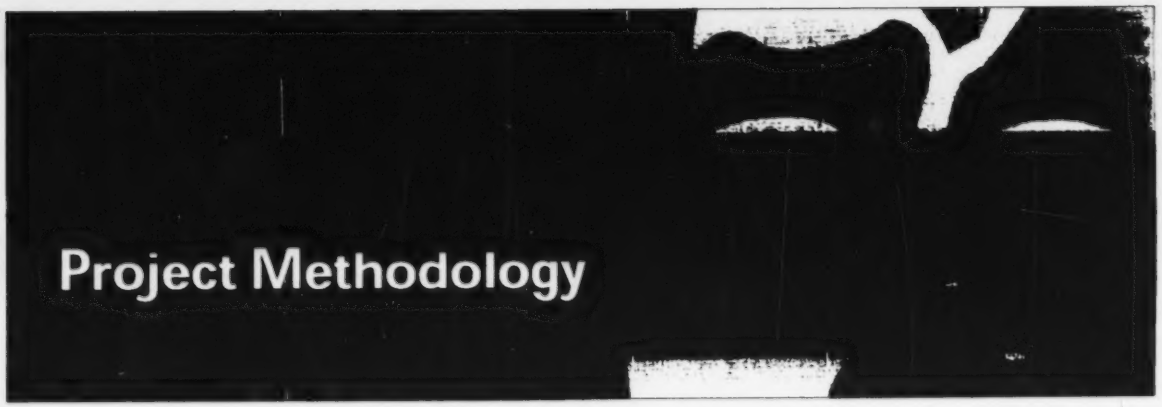
Built 1921-22

## East High School

East High School is a significant Neo-Classical style facility designed by Howell & Thomas architects from Cleveland. Completed in 1922, the school was the first of 5 high schools built during the 1920s building campaign by Columbus Public Schools. In an article about the designs of the new high schools in the August 1922 issue of *The Architectural Forum*, School Architect Howard Dwight Smith writes of the educational value of good architectural expression. As he put it, "architectural merit depends not so much upon the inordinate

expenditure of money as upon simplicity, dignity, good proportion..." East High School displays these qualities through its monumental portico and other classical design features. *"Every addition to knowledge is a true addition to human powers"* (Horace Mann) is an example of the incised inspirational statements on the exterior of the building extolling the importance of education. The high school is a contributing building in the East Broad Street Historic District listed in the National Register of Historic Places.

Please note: A history of Columbus Public Schools is provided in the Appendix.



# Project Methodology



Columbus Landmarks Foundation's Technical Assistance Consortium studied Avondale Elementary School, Burroughs Elementary School, Starling Middle School and East High School in depth. The buildings were thoroughly evaluated, detailed conceptual floor plans were devised to fit the program, architectural renderings were prepared to show exterior and interior features, and detailed budgets were prepared based upon the conceptual designs. The Columbus School Design Association (CSDA), serving as executive architects to Columbus Public Schools, evaluated the remaining seven schools in the group of 11: Clinton Elementary, Highland Elementary, Livingston Elementary, Reeb Elementary, Southwood Elementary and West Broad Elementary, and Crestview Middle School. While CSDA's study was less intensive, the two groups used the same overall guiding principles in the evaluation of all 11 schools. In addition, the proposed budgets used the same format for each school.

Following is a discussion of the selection criteria, guiding principles, and evaluation process for each school.

## Selection Criteria

Columbus Landmarks selected Avondale Elementary, Burroughs Elementary, Starling Middle School and East High School for intensive evaluation by its Technical Assistance Consortium. These schools were selected for the following reasons:

1. The four provide a sampling of different facility types: two elementary schools, one middle school and one high school.
2. The four represent a range of architectural styles and eras, having been built between 1894 and 1922 in Richardsonian Romanesque, Jacobethan, Classical Revival and Neo-Classical styles.
3. The four provide a range of construction materials and finishes, including tile block and poured concrete, and brick, sandstone, and limestone finishes. Avondale Elementary School contains an interior wood joist floor structure and wood truss roof structure, which provided an issue that the study sought to address.
4. The four represent varied floor plans and building configurations, including:
    - o Traditional monumental school with classrooms around a central hall (Avondale)
    - o Block-O plan with classrooms on the outside of a single-loaded corridor and an interior courtyard (Burroughs)
    - o I-plan school with auditorium and gymnasium additions (Starling)
    - o Rectangular plan school with classrooms forming a U around central community spaces (East)
5. The four illustrate typical issues of educational adequacy that were identified for many of the schools targeted for replacement in the Master Facilities Plan. These include poor site circulation; lack of handicapped accessibility; inadequate heating, ventilating, air conditioning and plumbing systems; lack of capacity for updated technology; poor replacement windows; insufficient space or inadequate allocation of space; and poorly maintained finishes.
6. Finally, the four were selected for the potential that exists to transfer design solutions to other similar schools in the Columbus school district and elsewhere.

## Guiding Principles

The Consortium adopted several guiding principles early in the evaluation, design and budgeting process for the four selected schools. This was done to ensure that the proposed solutions would meet the requirements of the Ohio School Facilities Commission, the Columbus Public Schools Master Facilities Plan, and other city, state and federal regulations, as applicable. They were also needed to establish benchmarks for the quality of the rehabilitated space and the standard of educational adequacy that would be achieved for the students, teachers and administrators of each school.

1. The renovated school is equivalent to a replacement school housing the same educational program.
2. The quality of renovated space is high – "like new." The renovated facility will have all new HVAC and plumbing systems, state-of-the-art technology integration, upgraded lighting systems, new fixtures and casework, new or repaired roofs as needed, new compatible windows and doors, and renovated or replaced interior finishes as appropriate. The Ohio School Design Manual published by OSFC provides guidance.
3. The renovated school will accommodate the program requirements outlined by OSFC and the Columbus Public Schools Master Facilities Plan for the facility type (elementary, middle or high) and student enrollment planned for the building.
4. The facility will be renovated/built to the allowable OSFC-funded square feet.
5. The renovated facility will meet all Ohio Building Code requirements, including the Americans with Disabilities Act (ADA) Accessibility Guidelines.
6. The Secretary of the Interior's Standards for Rehabilitation would serve as a guiding principle in the rehabilitation planning.
7. The building site will provide appropriate function areas, such as play areas and parking, for the specific school. Separate car and bus drop off areas will be identified in all cases.
8. The budget estimate will include all costs associated with the renovation of the school and its grounds, including any demolition or environmental abatement required. This budget will be compared against an estimate for a new replacement facility on the same site that includes all real-world costs associated with the project, including demolition and environmental abatement of the existing building.

## Process for Evaluating Each School

Consortium members visited each of the schools in order to gain a complete understanding of the characteristics of the site and the building. Photo documentation was developed, along with base floor plans that were used to develop the conceptual designs. Significant time was spent studying the existing buildings and the OSFC assessment material in order to provide an independent analysis of the building's condition and potential for renovation.

In order to propose conceptual designs that would meet the basic requirements of the OSFC and Columbus Public Schools, the Consortium was guided by three quantifiable factors: *square footage, program requirements, and cost.*

Square Footage Evaluation

1. **Establish allowable square feet under OSFC guidelines.**

The first step was to establish the total maximum square footage allowed for each building under OSFC guidelines. The guidelines specify the number of square feet per student for various sizes of elementary, middle and high schools. For example, a school with a projected student enrollment of 400 requires 125 square feet per student, for a total of 50,000 square feet (400 x 125 = 50,000). This is the maximum square footage that would qualify for funding by OSFC for that particular school.

2. **Determine whether an "oversized credit" can be used to increase the available space for programming.**

Next, the Consortium evaluated what potential space within the school could be considered an "oversized credit" under OSFC rules. Recognizing that existing school buildings sometimes contain space that cannot be considered *programmable* space, the OSFC calculates the size of an oversized credit. (In many cases, the credit refers to extra corridor space that is over and above what is called for in the program.) Importantly, the total of the oversized credit is not counted toward the total allowable square footage. The credit figure was provided by OSFC for each of the four schools.

In its goal to ensure that the project would be built to the maximum allowable OSFC-funded square feet, the Consortium evaluated whether there were any other unusable spaces in each building that could be counted toward the oversized credit. This was done in cooperation with staff of OSFC to ensure that that the group's assumptions were reasonable. For example, in Burroughs Elementary the architects identified 4,000 square feet in a basement coal room that could be abandoned. This increases the oversized credit in that school from the original 3,909 square feet provided by OSFC to 7,909 square feet. This total is then added to the size of the addition that could be built. By using the oversized credit, the existing school building is not penalized in the square footage calculation for spaces that are unusable for programming.

3. **Determine if any demolition is required.**

In three of the four schools studied, demolition of later and incompatible additions provide the opportunity to build back this square footage in a new addition that 1) is more appropriate architecturally, and 2) better accommodates the proposed program. For example, in Avondale Elementary, a 1974 wing containing a cafeteria/gym/auditorium is proposed for removal. Its 5,070 square feet is recovered in a proposed rear addition. Demolition in this case does not change the total square footage, but reallocates it.

*A summary of the calculations used to determine the maximum allowable square footage for each of the four schools is contained in the Appendix.*

**Program Evaluation**

1. **Determine the appropriate OSFC Program of Requirements for each school.**

The Ohio School Design Manual provides work sheets for calculating an appropriate allocation of program space for different enrollment sizes for each school type (elementary, middle and high), known as the Program of Requirements or POR. The POR is divided into the following categories:

- Academic Core Spaces
- Special Education Spaces
- Administrative Spaces
- Media Center Spaces
- Visual Arts Spaces
- Music Spaces
- Technology Education Spaces*
- Business Education Spaces*
- Family and Consumer Science Spaces*
- Physical Education Spaces
- Student Dining Spaces
- Food Service Spaces
- Custodial Spaces
- Building Services

* *Middle and high schools only*

The POR establishes specific square foot guidelines for spaces within each of these program areas. For example, under Academic Core, the POR for Avondale Elementary School specifies the number and size of elementary classrooms, kindergarten classrooms, teacher workrooms, restrooms and storage areas. Under Student Dining, the POR for Avondale calls for a student dining area of 3,000 square feet, a stage of 900 square feet, and table storage area of 200 square feet. The Program of Requirements for each school was provided to the Consortium by Columbus Public Schools and is considered preliminary.

*A summary of the POR for each building is included in the Appendix.*

2. **Design a school layout that meets the program square foot guidelines contained in the Program of Requirements (POR) to the extent possible. Recognize that some flexibility may be required to accommodate the suggested program in the existing space.**

Throughout the design process, Columbus Public Schools advised the Consortium that the square foot numbers identified in the Program of Requirements for each school serve as a guideline. There is some flexibility in how the program may be achieved in a particular school. The district

established some built-in flexibility, for example, by determining that a program space should meet the recommended POR square footage within a range of +5% or -10%. For example, OSFC's program requirement for a typical 900-square-foot classroom can be achieved within a range of 810 square feet (900 sf - 10%) to 945 square feet (900 sf + 5%).

The design solutions presented in this study adhere closely to the program square footage requirements that were provided, while allowing for some minimal flexibility in order to capitalize on existing spaces and require less reconfiguration of space. In a few cases, the optimum layout resulted in a slightly larger space than the recommended square footage in a particular program area. In other examples, the space was minimally smaller. Columbus Public Schools communicated to the Consortium that classroom sizes of 900 square feet (+5% or -10%) were critically important, while some flexibility could be used in other program areas. The number of classrooms is not subject to change, however.

An example of a space that varies slightly from the program recommendation is the proposed Media Center at Burroughs Elementary School. For an elementary school of this size (550 students), the POR calls for a Media Center of 3,700 square feet. The Consortium's design locates the Media Center on the first floor, in the former gymnasium/cafeteria/auditorium at the center of the building, giving the Media Center prominence as a focal point for the school. The proposed space provides 3,444 square feet, which is about 7% below the recommendation and within the 10% range.

**3. Factor in any specific program requirements of the local school district, including locally funded initiatives (LFIs).**

"Locally funded initiative" or LFI is the term given to a local determination to add to the scope of work that is funded through the OSFC. Local initiative costs are paid 100% by the school district and are not matched by the state. Examples include an auditorium, joint use community spaces, additional classrooms, and additional athletic facilities. Among the local initiatives identified by Columbus Public Schools is a "class size reduction" LFI for all elementary schools in the district. This provision lowers the student-teacher ratio by providing one additional classroom for schools with 450 students or less and two additional classrooms for schools with more than 450 students. These additional classrooms were taken into account in the designs for the two elementary schools in the study, Avondale and Burroughs. Since the cost of an auditorium does not qualify for state funding, Columbus Public Schools attached an LFI for auditorium renovation to the proposal for East High School.

In addition, the following were identified by Columbus Public Schools as important program requirements to achieve educational adequacy for each building:

- Classroom sizes of 900 square feet (+5% or -10%)
- Restrooms for both boys and girls on each floor
- Administrative offices located adjacent to entry for security
- Separate cafeterias and gymnasiums
- Accommodations for special education classes

The design solutions for each school successfully accommodate these requirements.

Cost Evaluation

1. **Evaluate the facility conditions and costs identified in the 2001 OSFC building assessment.**

The Consortium's estimating team visited each building and became familiar with the process used to prepare the 2001 OSFC assessment. The building assessments were carefully studied to enable the team to determine the level of repair or replacement of architectural, structural and mechanical systems that would be required for each structure. Information concerning hazardous materials abatement was provided in these reports for each school as well. These assessments were important to preparing a timely evaluation of the facility and its conditions by the Consortium's estimators. It should be noted that the solid foundations and sound structural integrity of these four schools contributed significantly to the cost savings associated with their renovation.

2. **Review conceptual designs and renderings provided by the Consortium.**

Once the conceptual designs for each school were well underway, the estimators began their review of the designs to determine the scope of work that was required to accommodate the program. To assist in this effort, spaces that require reconfiguration (either a complete change of use or removal/addition of walls to accommodate new square footage requirements) were highlighted on the drawings. The estimators also met with the Consortium's design professionals to review the level of finishes anticipated for the renovated facility. The specifications and finishes were also reviewed in terms of their compliance with provisions of the Ohio School Design Manual.

3. **Prepare a detailed budget of all costs associated with the project, including site costs, renovation costs, and new construction costs associated with the conceptual design.**

The estimating team worked closely with CSDA (the school district's executive architects) and its construction management team to agree on a standard method of conceptual estimating that would be used on these four buildings, as well as on the remaining seven schools being studied by CSDA. As estimating progressed, several meetings were held to fine tune the estimates to ensure that all relevant costs were considered and that the estimates would be in line with Columbus Public Schools' and OSFC requirements.

The approach agreed upon was to develop a complete 16-division estimate (the industry standard as sanctioned by the Construction Specification Institute). The intent was to use quantified unit costs for individual line items that represent the current cost of work and materials in the Central Ohio marketplace, and that comply with

requirements and specifications outlined by the OSFC in its Ohio School Design Manual. Final estimates were reviewed by CSDA and the district's construction management team and were accepted as being accurate and viable on the conceptual level within which they were conceived.

**4. Provide a comparative analysis of the total estimated project cost for renovation vs. the total estimated project cost for new construction.**

Final estimates for these four schools (along with the seven schools studied by the executive architect) were presented alongside total estimated costs for construction of a new school for purposes of comparison. In order for these comparisons to be accurate or "apples to apples," it was critically important that all *real-world* costs to the school district for each building were included. The Consortium's estimate for renovation (shown in the budget sheets in the Appendix) includes all costs associated with the rehabilitated school and its new addition, including the costs of any demolition, environmental abatement, site work, and locally-funded initiatives (such as the cost of adding an additional classroom where required). Added to this number are other related costs associated with the renovation of the school, such as the cost of "swing space" required to house students during construction.

To generate an accurate cost comparison, the total project cost for a new replacement school has to include *all* costs associated with its production, including the cost of demolishing the existing facility, environmental abatement, and any locally-funded initiatives for the particular school. Since OSFC does not contribute to the cost of demolishing the existing building (when the project is a new replacement school), the environmental abatement and demolition costs were initially excluded from this calculation. However, these are real costs for the school district, and thus needed to be included in the total project cost for a new building. When these *real world* or *total* project costs were considered, the estimated costs for renovation were found to be *significantly below* the estimated costs for construction of a new replacement school for 10 of the 11 schools that were studied.

This analysis resulted in the resolution by the Columbus Board of Education to move these schools from the list of "recommended to be replaced" to the list of "recommended to be renovated." The bottom line was the fact that the cost to preserve and renovate these historic schools was below the 100% cost of new construction, representing a substantial cost savings to Columbus Public Schools.

*The budget summary sheet for each of the schools is provided in the Appendix.*

# Design Solutions

The conceptual designs for these four schools arose out of a two-day design charrette held by the Consortium, as well as from hours of additional study and refinement to achieve the optimum configuration for each school. The architects worked expediently, but with meticulous attention to detail to ensure that the designs met local and state requirements. Square footage requirements, program requirements, educational adequacy and budget all factored in to their designs.

Throughout the design process, the Consortium sought to create a high quality educational environment while preserving the important exterior and interior features that define each building's character. Additions are designed to blend with the historic building, while being clearly identified as new construction. The site was carefully reconfigured, if necessary, to achieve the necessary accommodations for students, staff and visitors.

The design solutions developed by the Consortium for these four school buildings can be applied to other historic schools, both in Columbus and elsewhere. Some of the highlights of these solutions are presented below.

## Building Solutions

**1. Take advantage of sound building structure and high quality exterior and interior materials.**

The integrity of the physical structure and materials plays an important role in making the renovation of historic schools feasible. The structural condition of the four schools was communicated to the Consortium in the OSFC building assessments, which found that each building has a sound foundation and structure. The assessments projected that no funds would be needed to stabilize the foundation, floors or roof structure in three of the four schools. Only modest repairs were recommended for walls and chimneys in all four schools, mostly cleaning and repointing of masonry. These recommendations were factored into the Consortium's renovation estimates and represented an important cost savings over new construction.

The only school identified in the assessment for major structural work was Avondale Elementary, and this presented an interesting case study that was resolved over the course of the project. Avondale, built in 1894, has masonry bearing walls, but a wood joist floor structure and a wood truss roof structure. Both are identified in the OSFC assessment as being in good condition. However, because of requirements in the Ohio School Design Manual (which is written to guide new construction), the wood floor structure in Avondale was scheduled for complete replacement with a new concrete floor system. This major (and unnecessary) expenditure increased the estimated renovation cost in OSFC's assessment for this building by over $1 million. It pushed the cost ratio of renovation to new construction to 110%, meaning that the estimated cost of renovation for Avondale far exceeded the 2/3 guideline established by OSFC.

In an effort to address this issue, representatives of the Columbus Landmarks Foundation, Columbus Public Schools and the Ohio Historic Preservation Office met with OSFC staff to seek alternatives to complete replacement of wood structure. The result of their efforts was a determination by the OSFC's Chief of Planning that it is reasonable to keep this type of structure in place provided that there is a thorough evaluation of the structure in each case, and a determination that safety concerns are adequately addressed and that the expected service life of the structure is sufficient to warrant the investment. The proposed retention of the wood structure in Avondale is an important factor in making its renovation feasible.

High quality exterior and interior finishes are seen as advantages in the four schools. The exterior materials of these historic buildings, including limestone, sandstone and brick, are executed in tasteful designs that illustrate important architectural styles of the late 19th and early 20th centuries. On the interior, high ceilings, tall windows,

wood floors and wide hallways are some of the features that are not likely to be built in a new school. Some of the schools have architecturally significant interior spaces, as well, such as the second floor hallway of East High School, with decorative skylights and a monumental stair.

**2. Take advantage of good classroom and corridor locations.**

Where possible, the amount of intervention into each school was reduced (saving costs) by maintaining an appropriate and workable layout that already exists. For example, in Avondale Elementary, the existing classrooms work well: they provide an appropriate size (averaging about 850 square feet each) and are easily reached from the central hall on each floor. In the other schools, classroom locations are reused, but partition walls between them are relocated to achieve an appropriate size for the room. The existing corridor locations are maintained, as they continue to provide good circulation and access.

**3. Adapt school layout to fit programming needs, including modifying program areas where needed to create a better fit and reflect a new use.**

Redesign of an interior, poorly functioning space is a critical component of several of the conceptual programs. For example, Burroughs Elementary and Starling Middle school both have a central two-story space that can be reclaimed to provide an important focal point for the school. In the case of Burroughs, the center of the building contains a multi-purpose cafeteria-auditorium-gym that was a common design element of many elementary schools of the early 20th century, but is crowded and inefficient today. The solution for Burroughs is to build an addition containing a separate gym and cafeteria with a stage located between them, while converting the existing space into a media center. In the case of Starling, a center cafeteria space had been floored over and subdivided into small classrooms. The plans call for this area to be returned to its original use and two-story appearance, creating an important student gathering space in this building.

**4. Create a main entrance/lobby that provides the following:**

- **a handicapped accessible entry to the school**
- **a central entry for building security**
- **a focal point for students and visitors to enter the building**
- **a commons/gathering area at the high school level**
- **a transition between the old and the new**

This approach is recommended in all four buildings. The new entrance is located to the rear of the building at Avondale and Burroughs Elementary schools and at East High school, where it provides a connection between the original building and the new addition. By locating such an element at the rear of the building, its impact on the historic character of the school is reduced. In the case of Starling Middle school, a new entry is proposed between the original building and its two later wings (containing the gym and the auditorium). Set back from the main façade, this feature provides a welcoming entrance, but does not interfere with the original architecture of the school. In three out of the four cases, the entrance lobby provides the location for the building's elevator.

5. **Where possible, use an addition as a location for large assembly and community spaces, such as a gymnasium or cafeteria.**

This provides an advantage to the budget because these large-volume spaces represent cost-effective new construction. Since these spaces are separate from the main building, the noise volume associated with their use is kept away from its academic core. These spaces are also easy for visitors to use, as they are located adjacent to the building connector and main entrance.

As envisioned, new additions to the four schools are designed to be contemporary in appearance but compatible with the original buildings. The additions are not intended to copy or mimic the design of the original, but will complement the size, scale, color and materials of the original.

## Site Solutions

1. **Continue with multi-story designs for school additions, blending with the historic structure and delivering a smaller footprint, saving valuable land area on small urban sites.**

In three of the schools, the design solution calls for a new addition to the rear of the original building. By using a multi-story design that complements the original structure, more of the site is available for student activity areas, parking and vehicular circulation.

2. **Create separate car and bus drop off areas for each school.**

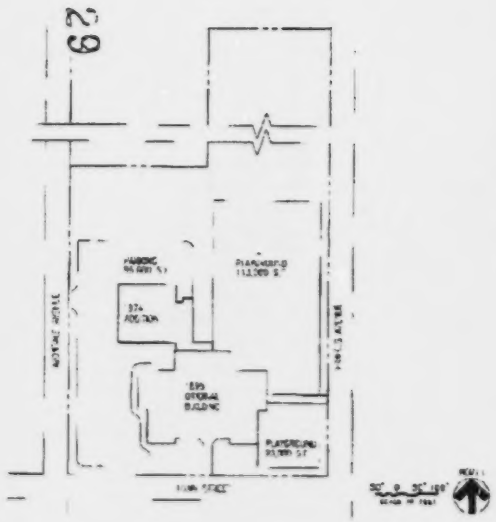
Where the setback of the school allows, the bus drop-off is recommended as a curb cut at the front of the school building (Burroughs and Starling). In other locations, bus and car drop-offs are located to the sides of the building, with access to the new entry at the connection between old and new (Avondale and East). The solution for Avondale Elementary locates both car and bus drop-offs to one side of the school, allowing for conflict-free student use on the other.

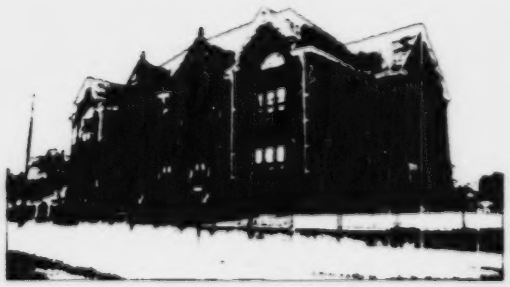
3. **Separate outdoor activity areas for students from vehicular circulation to the greatest extent possible.**

Fencing is used to separate student activity areas from vehicular circulation areas on site and from the street and sidewalk at the right-of-way. For the elementary schools, hard surface play areas are located further from the building to allow green space around the historic structure and to allow younger students to play closer to the school.

4. **Provide parking on site to the greatest extent possible for faculty and staff for elementary and middle schools, and for students, faculty and staff for high schools, evaluating whether visitor and event parking can be accommodated on the street.**

Small urban sites require creative solutions to parking issues. For elementary and, to a lesser extent, middle schools, a significant portion of the site needs to remain as outdoor activity area. An evaluation of the immediate neighborhood of Avondale, Burroughs and Starling shows that all residences have alley access with parking in the rear, leaving many street spaces available for visitors. For East High School, the drop-off lanes are also available for visitor parking (car drop-off lane) and event parking (bus drop-off lane when buses are not present).



# Avondale Elementary School

**School Facts**

| | |
|---|---|
| Address: | 156 Avondale Avenue, Columbus, Ohio |
| Current Configuration: | K-5 |
| Date: | 1894 |
| Style: | Richardsonian Romanesque |
| Construction: | Masonry bearing, wood floor joists |
| Architect: | David Riebel |
| Recent Additions: | 1974 cafeteria/gymnasium wing |
| Existing Square Feet: | 33,896 sf (original building) |
| | 5,070 sf (addition) |
| Site: | 2.8 acres |

**Columbus Public Schools**
**Master Facilities Plan**
***Avondale Elementary School***

Projected enrollment: 400 students

Proposed configuration: K-5

Planning Area 5, Segment 2

Required size, per OSFC guidelines: 50,000 sf
(400 students x 125 sf per student)

*Original Master Plan Recommendation:*
REPLACEMENT
(Following 2/3 guideline, recommended for replacement based on 110.11% renovation cost to replacement cost from OSFC Building Assessment.)

*Revised Master Plan Recommendation:*
RENOVATE/ADD
(Based on waiver of 2/3 guideline as long as total renovation costs are less than 100% of total new construction: recommended for renovation based on 92.83% renovation *total* project cost to replacement *total* project cost.)

## Avondale Elementary School

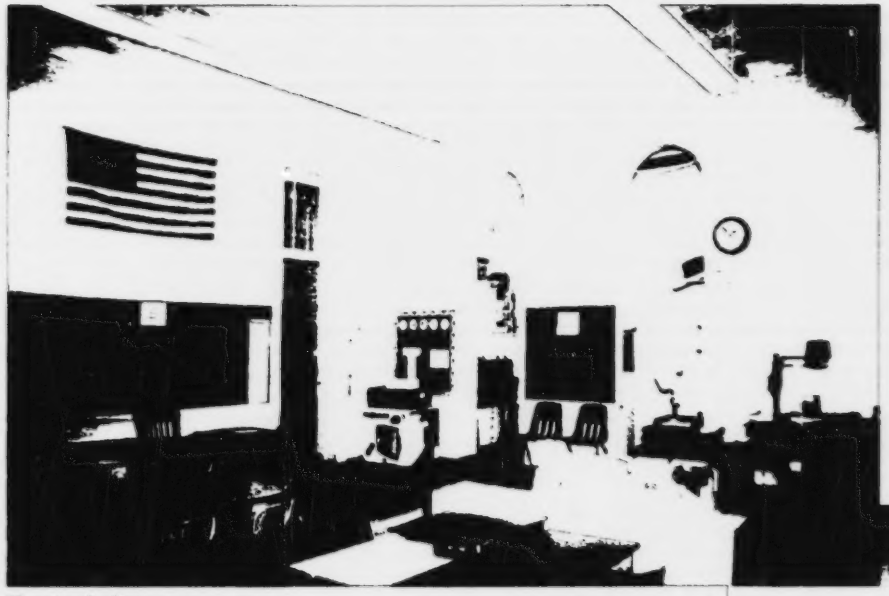
The conceptual design for Avondale Elementary School meets the following requirements of the Columbus Public Schools and the Ohio School Facilities Commission:

- Square footage requirements
- Program requirements for 400 student enrollment, K-5
- Educational adequacy requirements
- Budget requirements

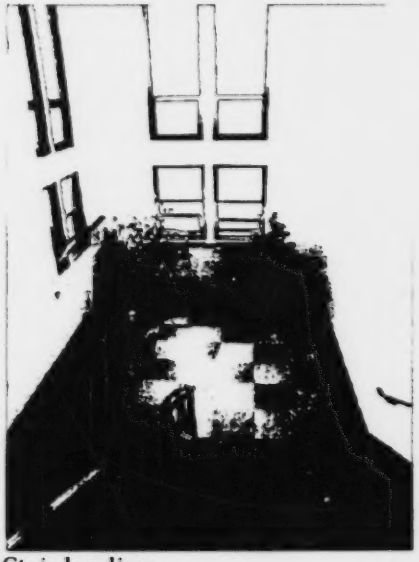
## Highlights of the Design:

- Significant neighborhood landmark is retained and enhanced
- Program of Requirements met in 51,696 square feet (33,896 square feet of existing building and 17,800 square feet of new construction)
- Existing 1974 cafeteria/gymnasium wing removed
- Significant central corridors with tin ceilings retained
- Existing classroom layout reused; most have windows on two walls admitting natural light
- Minimal interior reconfiguration required; limited to new administrative space on ground floor and new media center on first floor
- New accessible main entrance created at rear of building; near drop-off and parking areas
- Administration adjacent to entry for monitoring security
- New 2-story addition at rear contains separate student dining and gymnasium; also accommodates 2 kindergarten classrooms
- Site plan provides separation of bus and parent drop-offs, staff and visitor parking, service areas, green play and hard surface play areas

Exterior Details

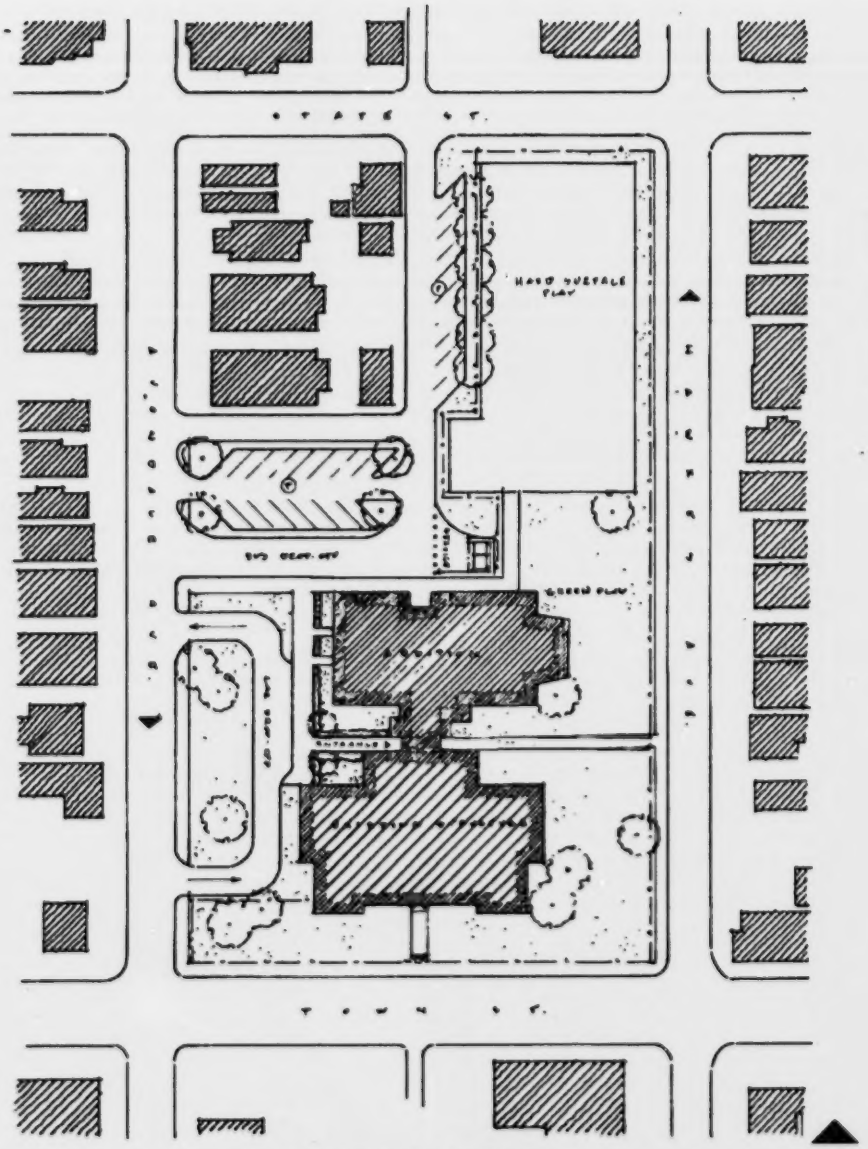


Typical classroom



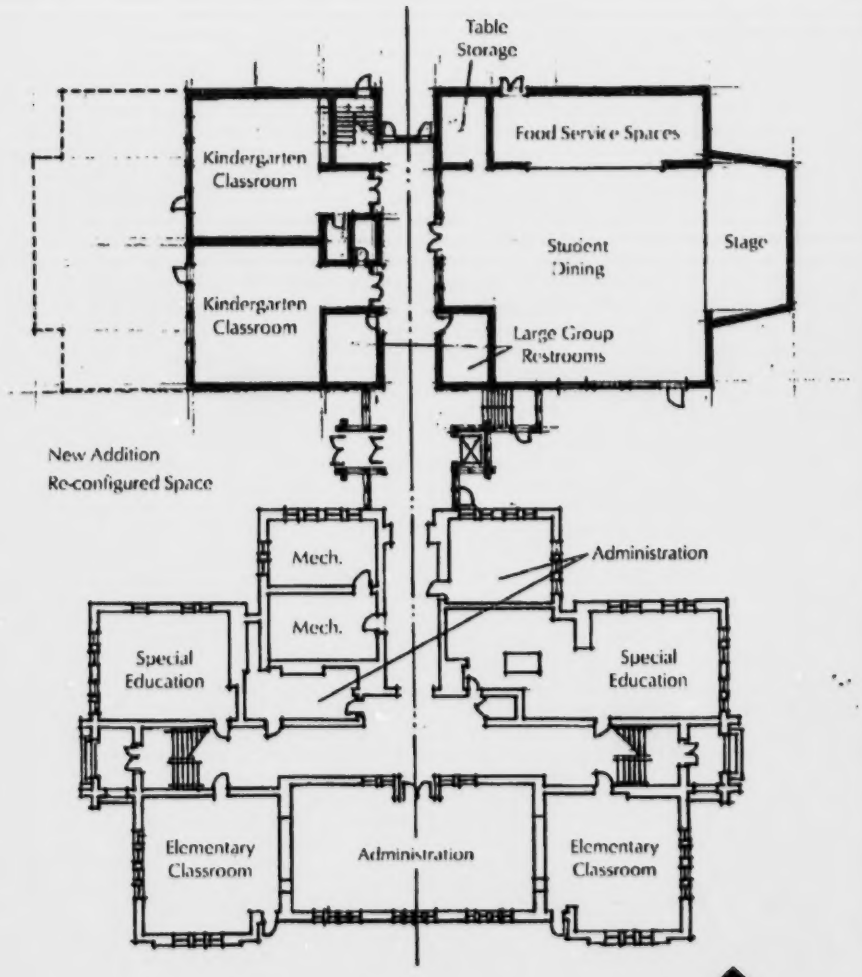
Stair landing

First floor hall



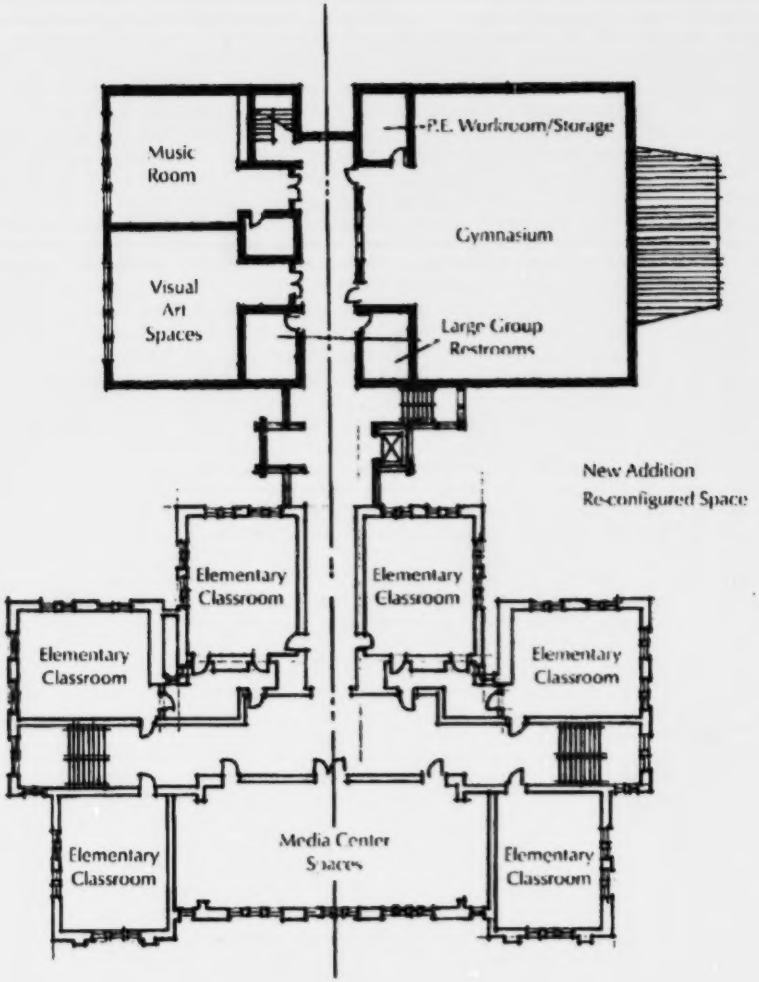
Conceptual Site Plan

N

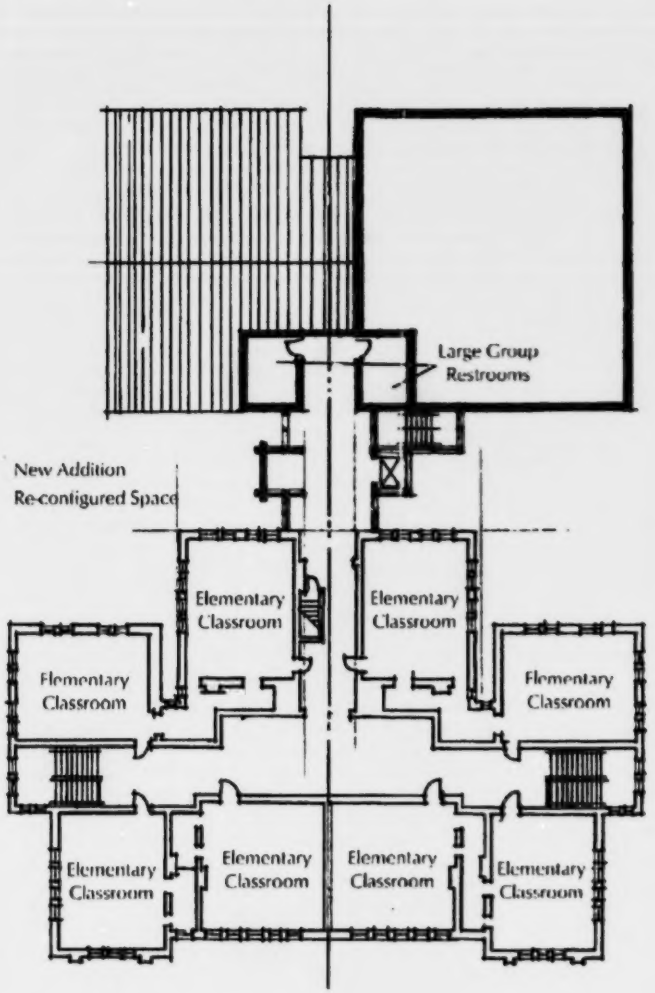



Conceptual Ground Floor Plan

N

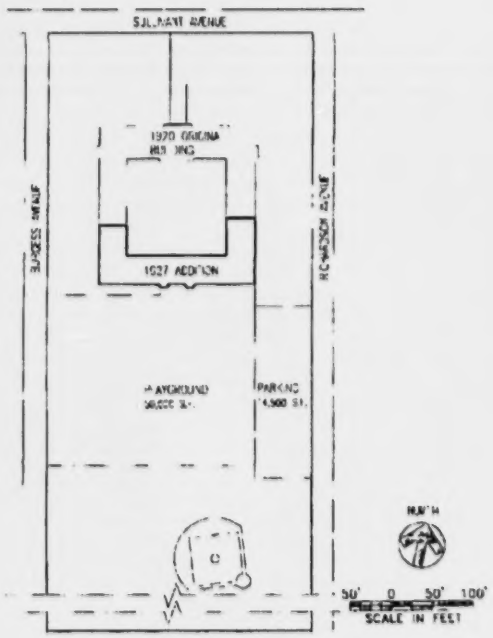


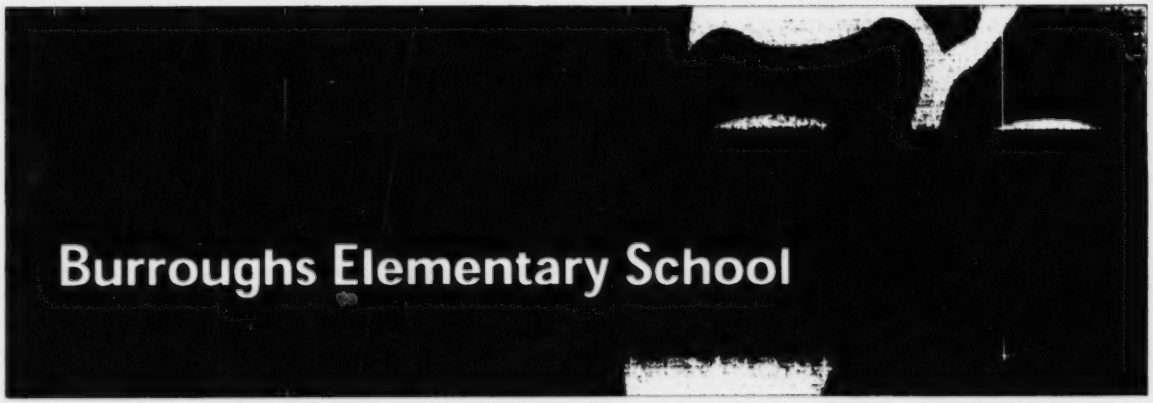

Conceptual First Floor Plan




Conceptual Second Floor Plan

Artist's conception of new addition.
(original building is to the right)





# Burroughs Elementary School

**School Facts**

| | |
|---|---|
| Address: | 2585 Sullivant Avenue, Columbus, Ohio |
| Current Configuration: | PK-5 |
| Date: | 1920-21; 1927 |
| Style: | Jacobethan Revival |
| Construction: | Masonry bearing, concrete flooring |
| Architect: | Howard Dwight Smith |
| Existing Square Feet: | 40,059 sf (original 1921 section) |
| | 18,412 sf (1927 addition) |
| Site: | 7.1 acres |

**Columbus Public Schools**
**Master Facilities Plan**
***Burroughs Elementary School***

Projected enrollment: 550 students

Proposed configuration: PK-5

Planning Area 5, Segment 2

Required size, per OSFC guidelines: 64,521 sf
(550 students x 117.31 sf per student)

*Original Master Plan Recommendation:*
REPLACEMENT
(Following 2/3 Guideline, recommended for replacement based on 89.94% renovation cost to replacement cost from OSFC Building Assessment)

*Revised Master Plan Recommendation:*
RENOVATE/ADD
(Based on waiver of 2/3 Guideline as long as total renovation costs are less than 100% of total new construction: recommended for renovation based on 89.57% renovation *total* project cost to replacement *total* project cost)

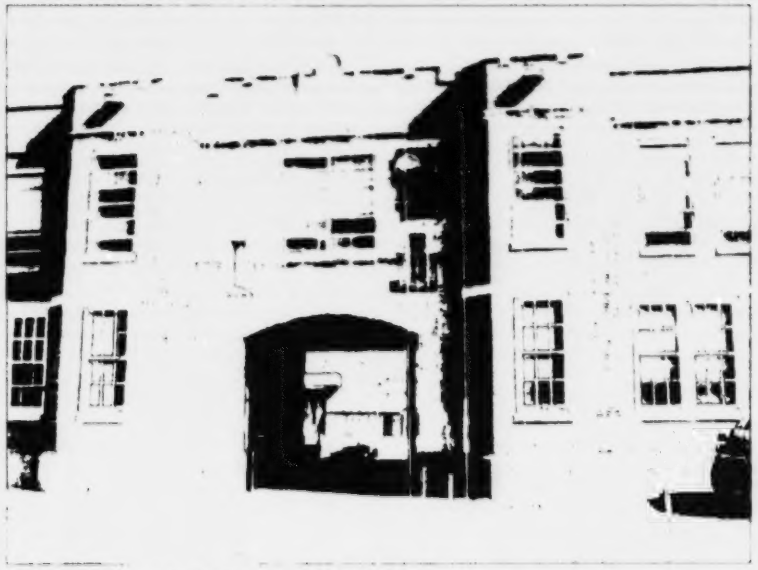
## Burroughs Elementary School

The conceptual design for Burroughs Elementary School meets the following requirements of the Columbus Public Schools and the Ohio School Facilities Commission:

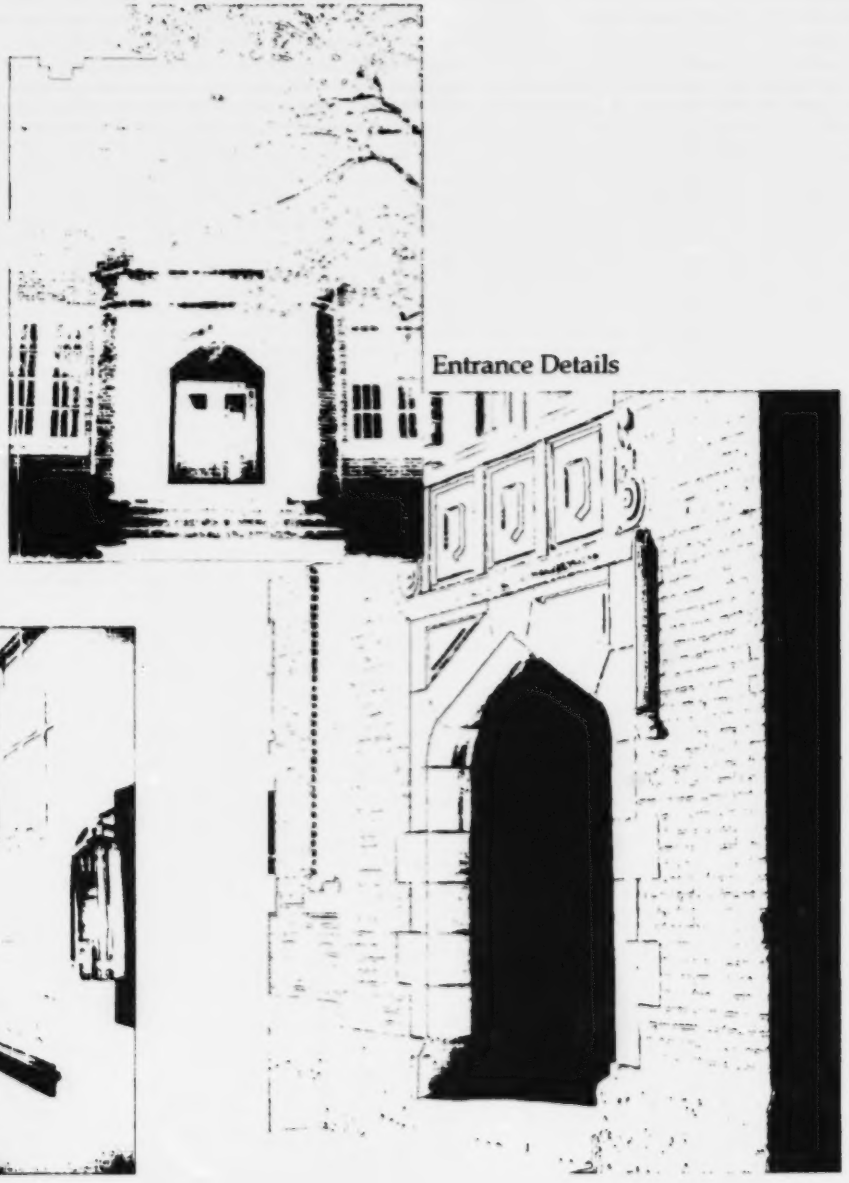
- Square footage requirements
- Program requirements for 550 student enrollment, PK-5
- Educational adequacy requirements
- Budget requirements

## Highlights of the Design:

- Significant neighborhood landmark is retained and enhanced
- Program of Requirements met in 70,692 square feet (58,471 square feet of existing building and 16,221 square feet of new construction)
- No portion of the building removed
- Reconfigured space primarily limited to first floor in core of building
- Current inadequate cafeteria/ auditorium/gym replaced with new two-story media center space; becomes focal point of the school
- Separate gymnasium and student dining spaces added in new addition at rear
- Low stage between gym and cafeteria is designed for use with either space; retractable walls
- New main entrance/lobby created between original building and proposed new wing; entry doors accessible from both drop-off and parking areas
- Administration adjacent to entry for security monitoring
- Interior courtyard maintained; elevator added
- Site plan provides separation of bus and parent drop-offs, staff and visitor parking, green play and hard surface play areas



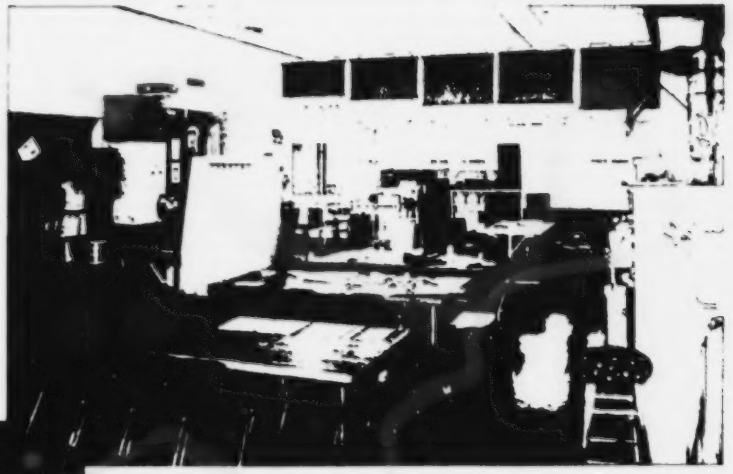
Rear passage to interior courtyard

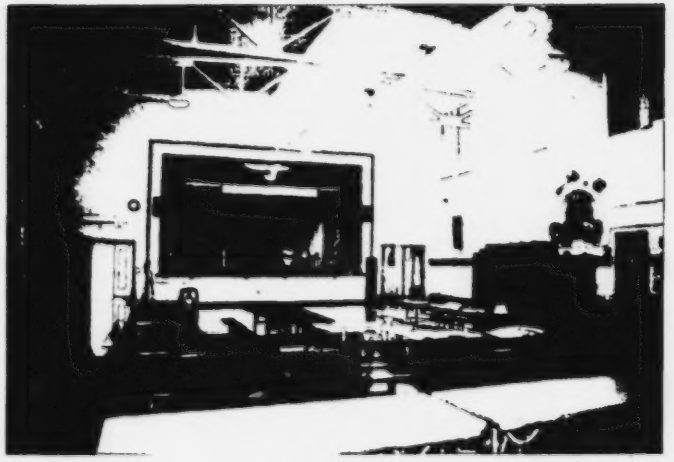


Entrance Details

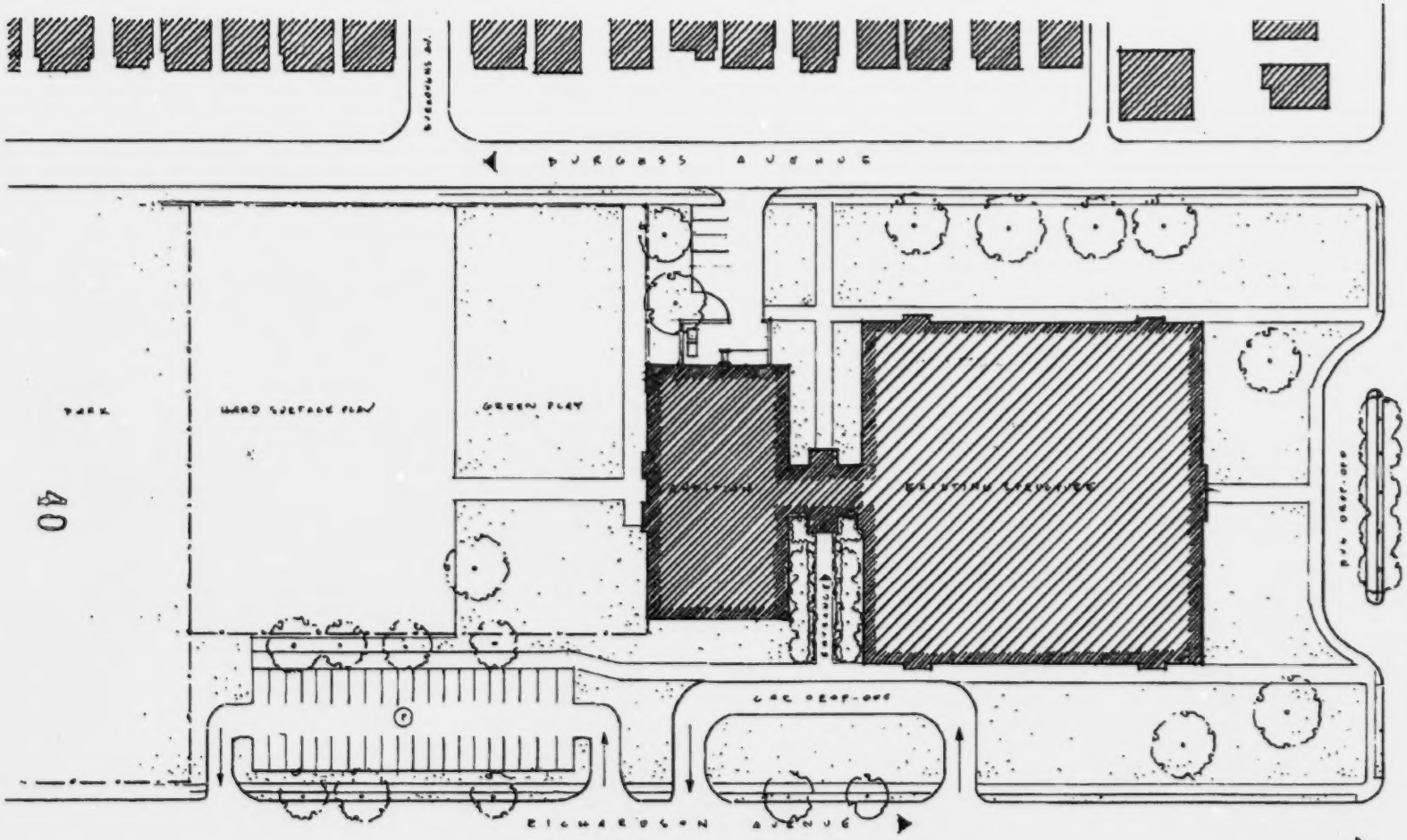
Typical Hallway

Typical classrooms

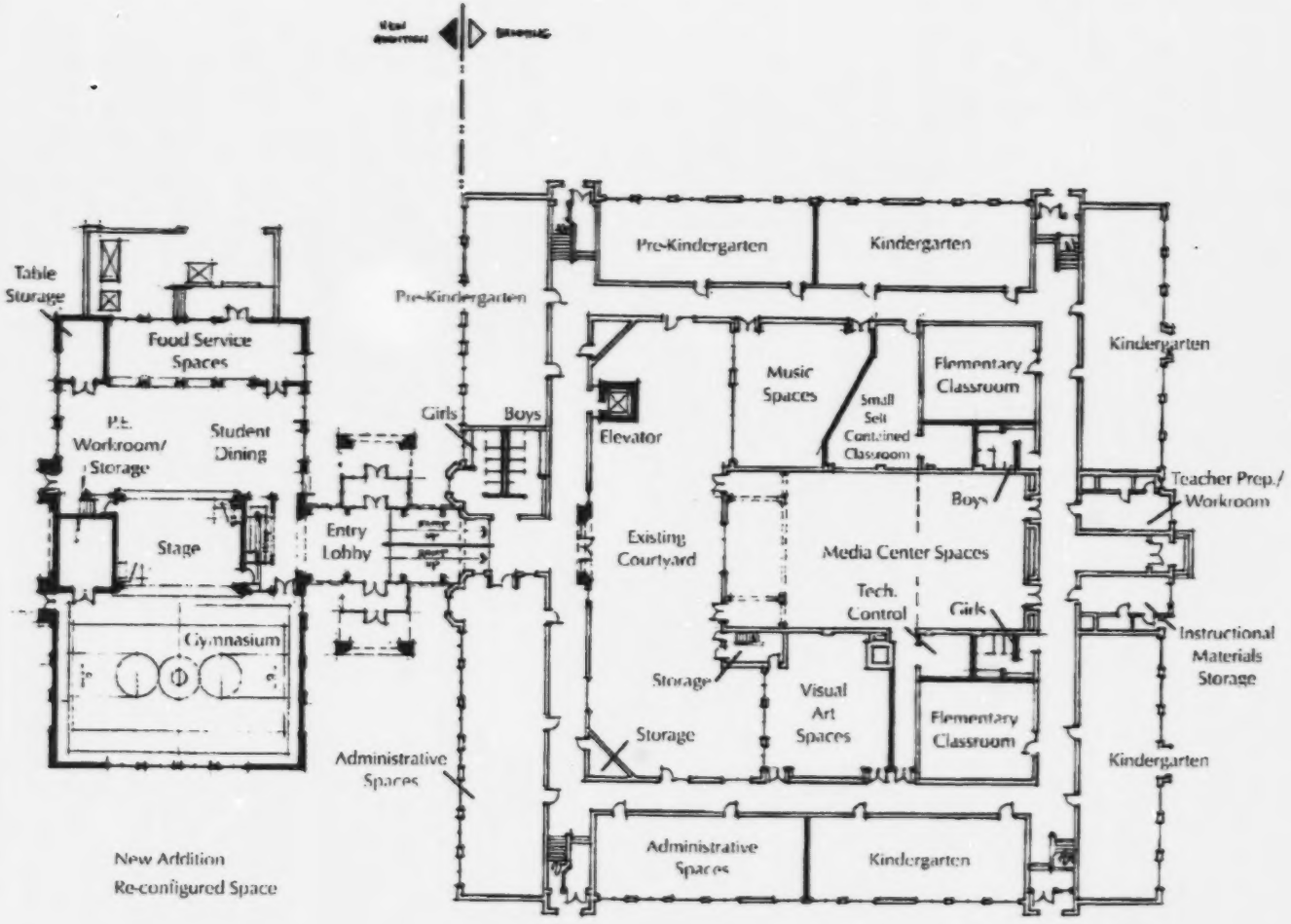




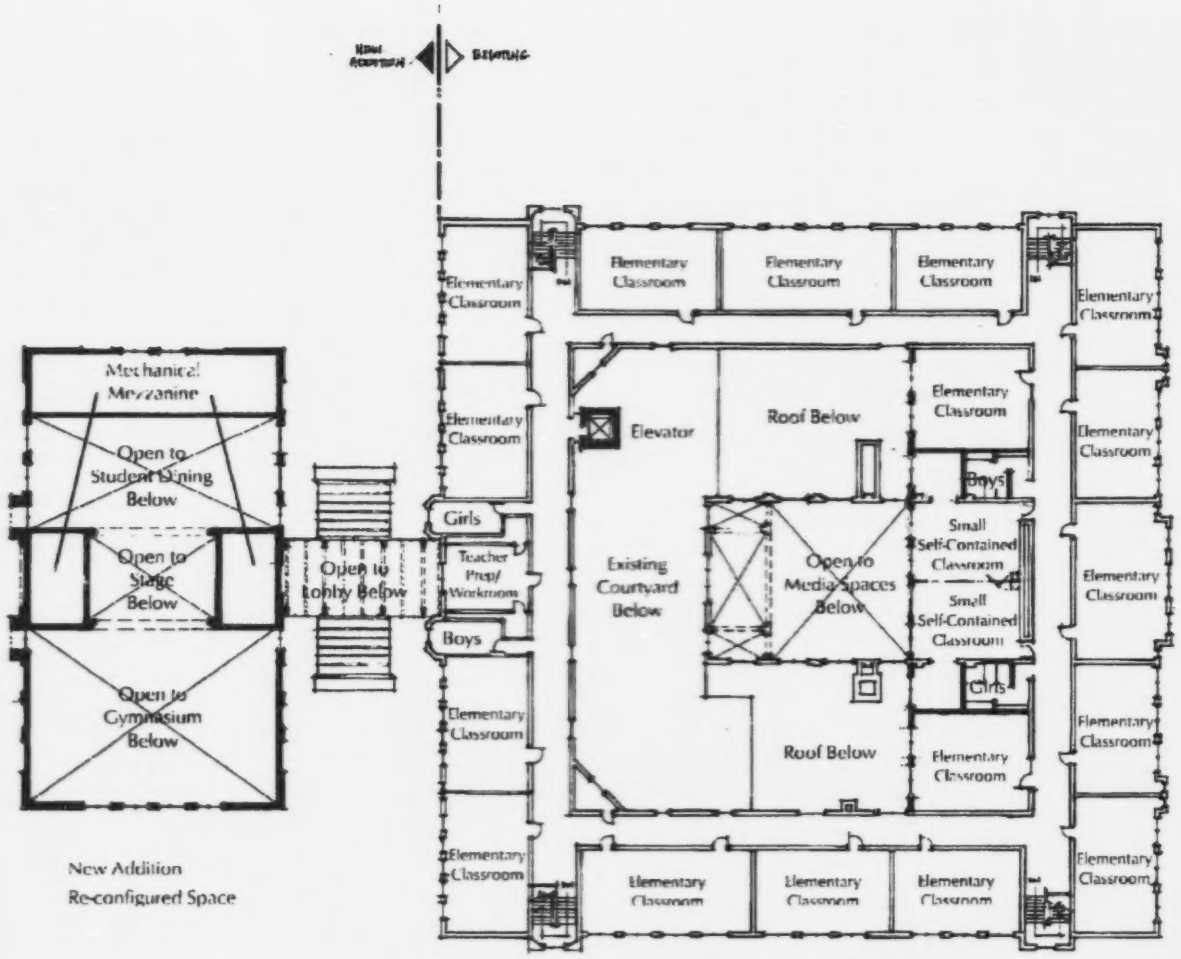
Present cafeteria/auditorium/gym




Conceptual Site Plan




Conceptual First Floor Plan

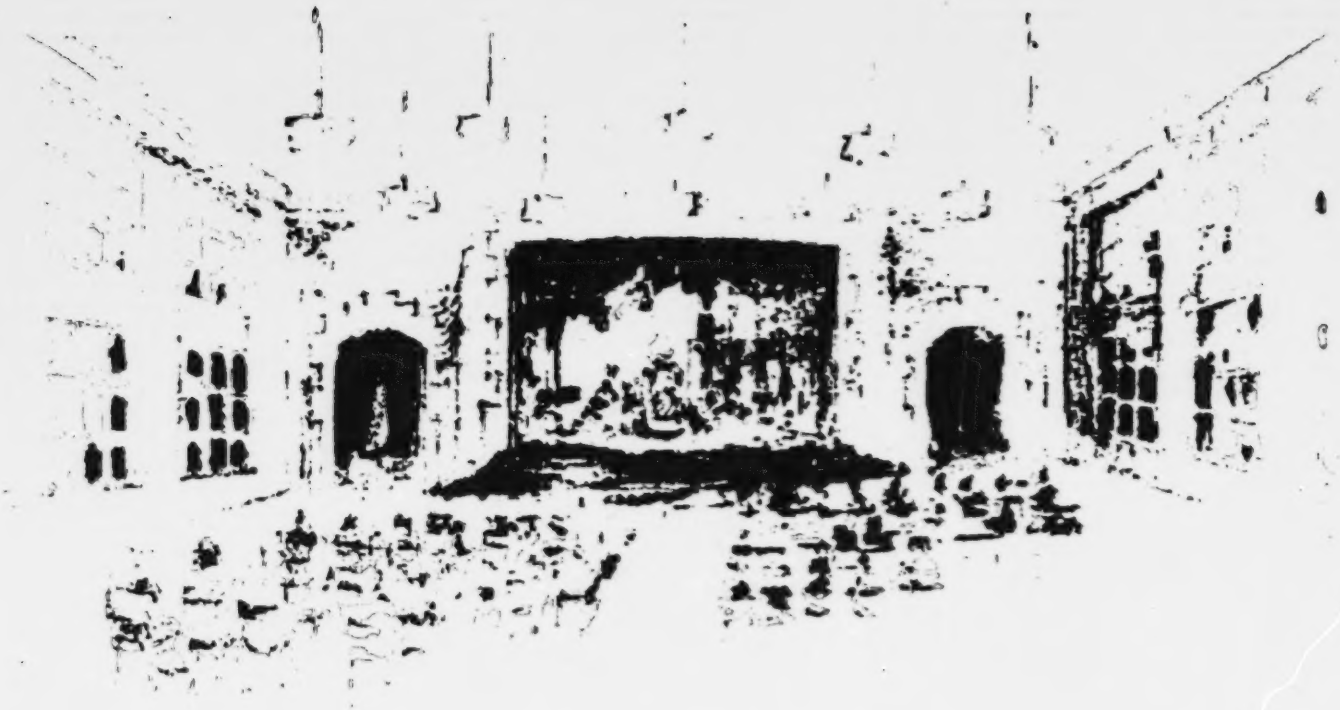



Conceptual Second Floor Plan

N

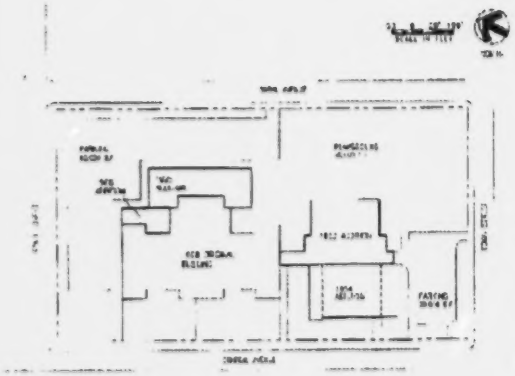
Artist's conception of connector/new entry, looking west.

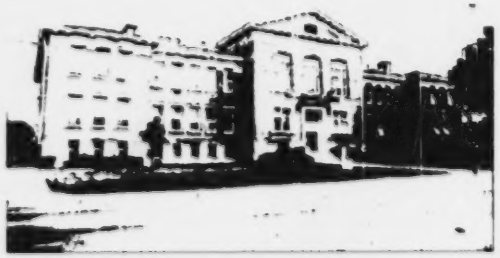
Artist's conception of view looking north into courtyard.



Artist's conception of student dining space in rear addition showing use of stage, looking east.

Artist's conception of two-story media center space in original building.





# Starling Middle School

## School Facts

| | |
|---|---|
| Address: | 120 S. Central Avenue, Columbus, Ohio |
| Current Configuration: | 6-8 |
| Date: | 1908; 1925 addition |
| Style: | Classic Revival |
| Construction: | Masonry bearing, concrete flooring |
| Architect: | David Riebel |
| Recent Additions: | 1953, 1954, and 1966 |
| Existing Square Feet: | 93,280 total sf including:<br>52,674 sf (original 1908 building)<br>15,012 sf (1925 addition)<br>14,984 sf (1953 addition)<br>3,393 sf (1954 addition)<br>5,796 sf (1954 addition)<br>1,421 sf (1966 addition) |
| Site: | 3.1 acres |

**Columbus Public Schools**
**Master Facilities Plan**
***Starling Middle School***

Projected enrollment: 600 students

Proposed configuration: 6-8

Planning Area 5, Segment 3

Required size, per OSFC guidelines: 85,728 sf (600 students x 142.88 sf per student)

*Original Master Plan Recommendation:*
REPLACEMENT
(Following 2/3 Guideline, recommended for replacement based on 75.42% renovation cost to replacement cost from OSFC Building Assessment)

*Revised Master Plan Recommendation:*
RENOVATE/ADD
(Based on waiver of 2/3 Guideline as long as total renovation costs are less than 100% of total new construction: recommended for renovation based on 85.88% renovation *total* project cost to replacement *total* project cost)

## Starling Middle School

The conceptual design for Starling Middle School meets the following requirements of the Columbus Public Schools and the Ohio School Facilities Commission:

- Square footage requirements
- Program requirements for 600 student enrollment, grades 6-8
- Educational adequacy requirements
- Budget requirements

## Highlights of the Design:

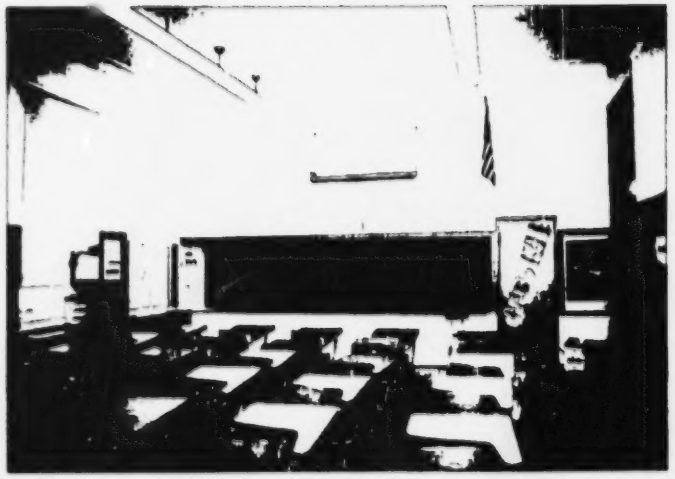
- Significant neighborhood landmark is retained and enhanced; originally served as West High School
- Program of Requirements met in 98,635 square feet (88,172 square feet of existing building and 10,463 square feet of new construction)
- Small 1966 addition removed
- Each floor serves as academic cluster for one grade level
- Reconfigured and new space in rear wing allows for larger classrooms, project labs and teacher work areas
- New entrance/lobby with elevator and stair between original building and addition
- Administrative offices adjacent to entry for security monitoring
- New 2-story student dining space in central location (reconfigured space)
- Expanded media center on 2nd floor in original library
- Existing auditorium to be maintained in renovation (would not be funded under OSFC)
- Existing gymnasium to be maintained; alternate exists for possible expansion
- Site plan provides separation of bus and parent drop-offs, staff and visitor parking, hard surface area, green space

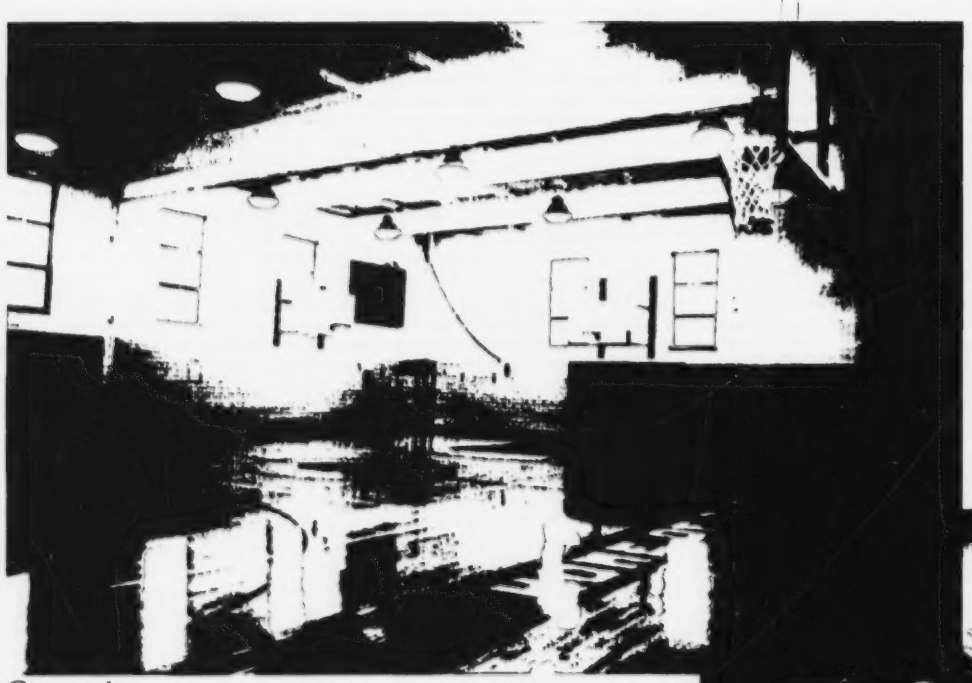
Exterior detail

1954 auditorium addition

49

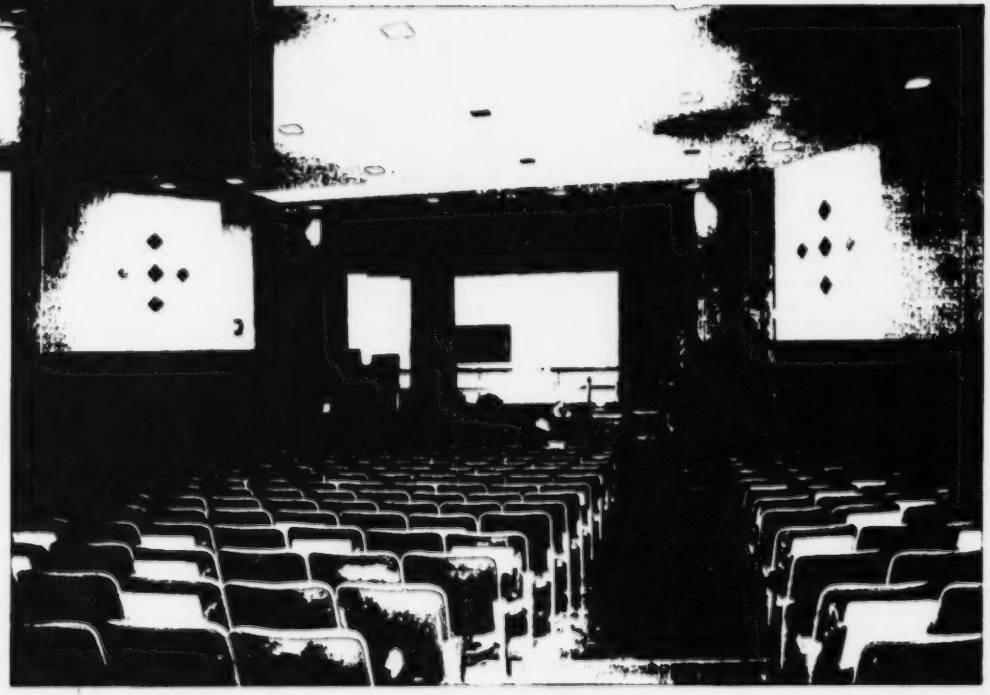
Classroom





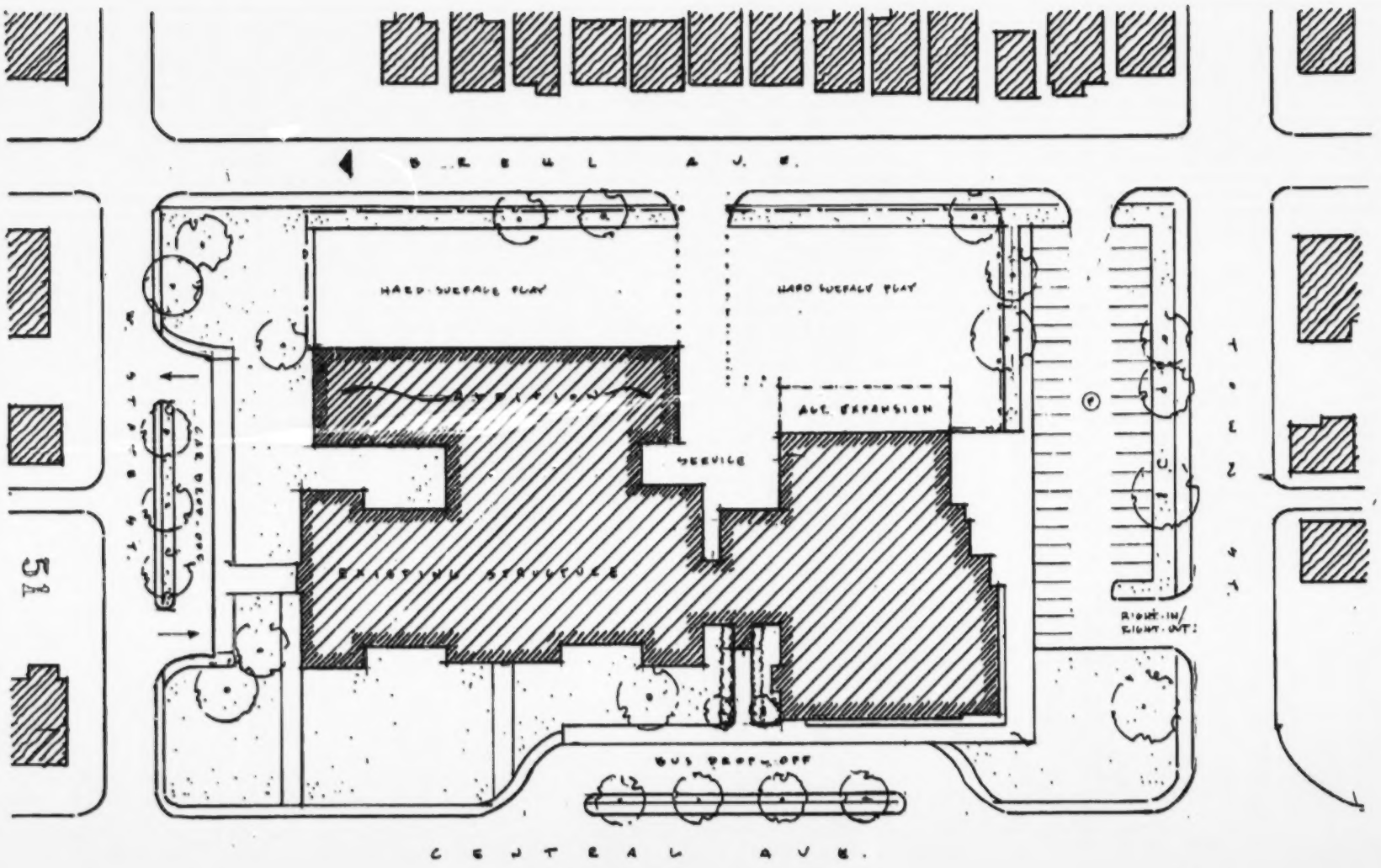
Gymnasium

Current cafeteria

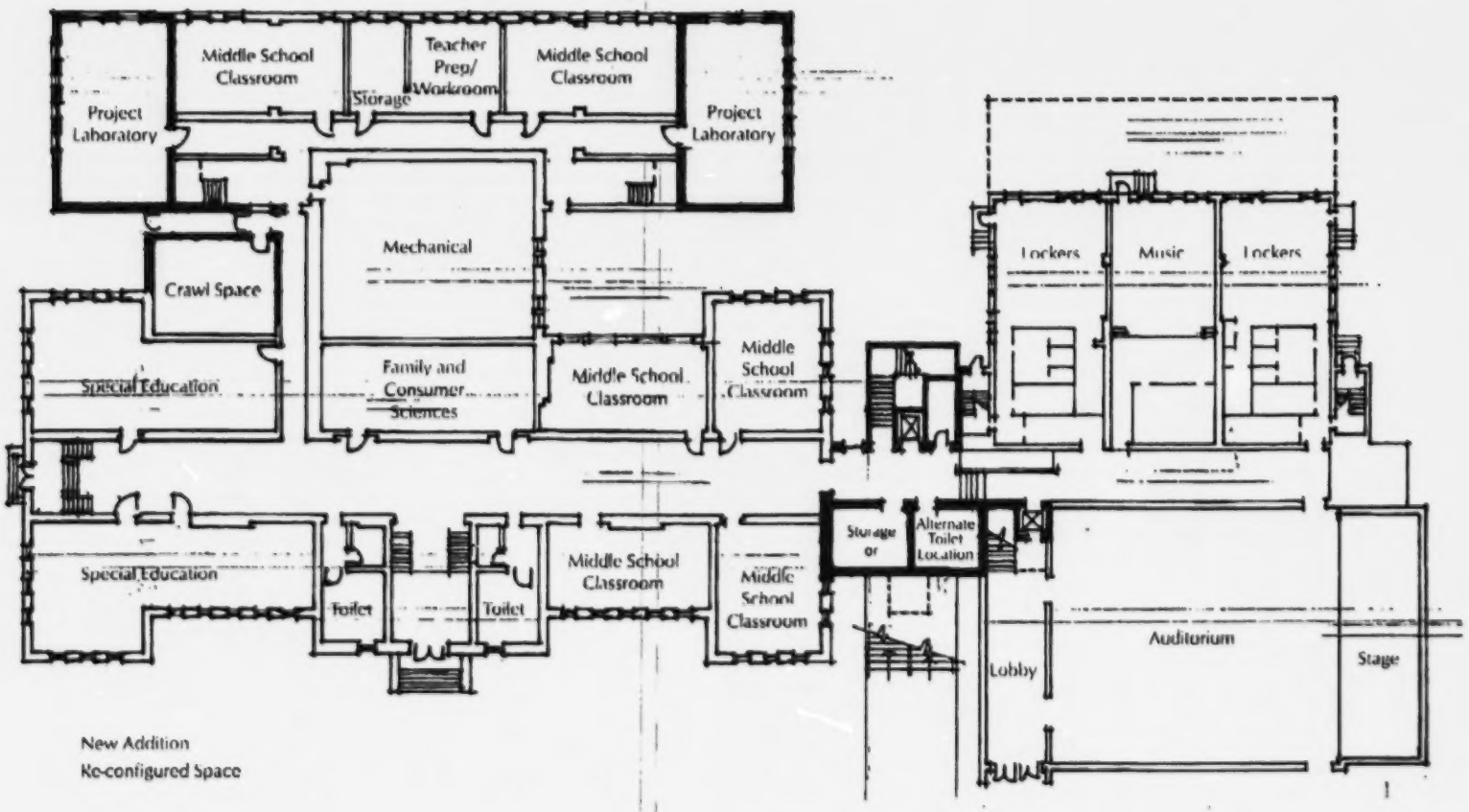


Auditorium

50



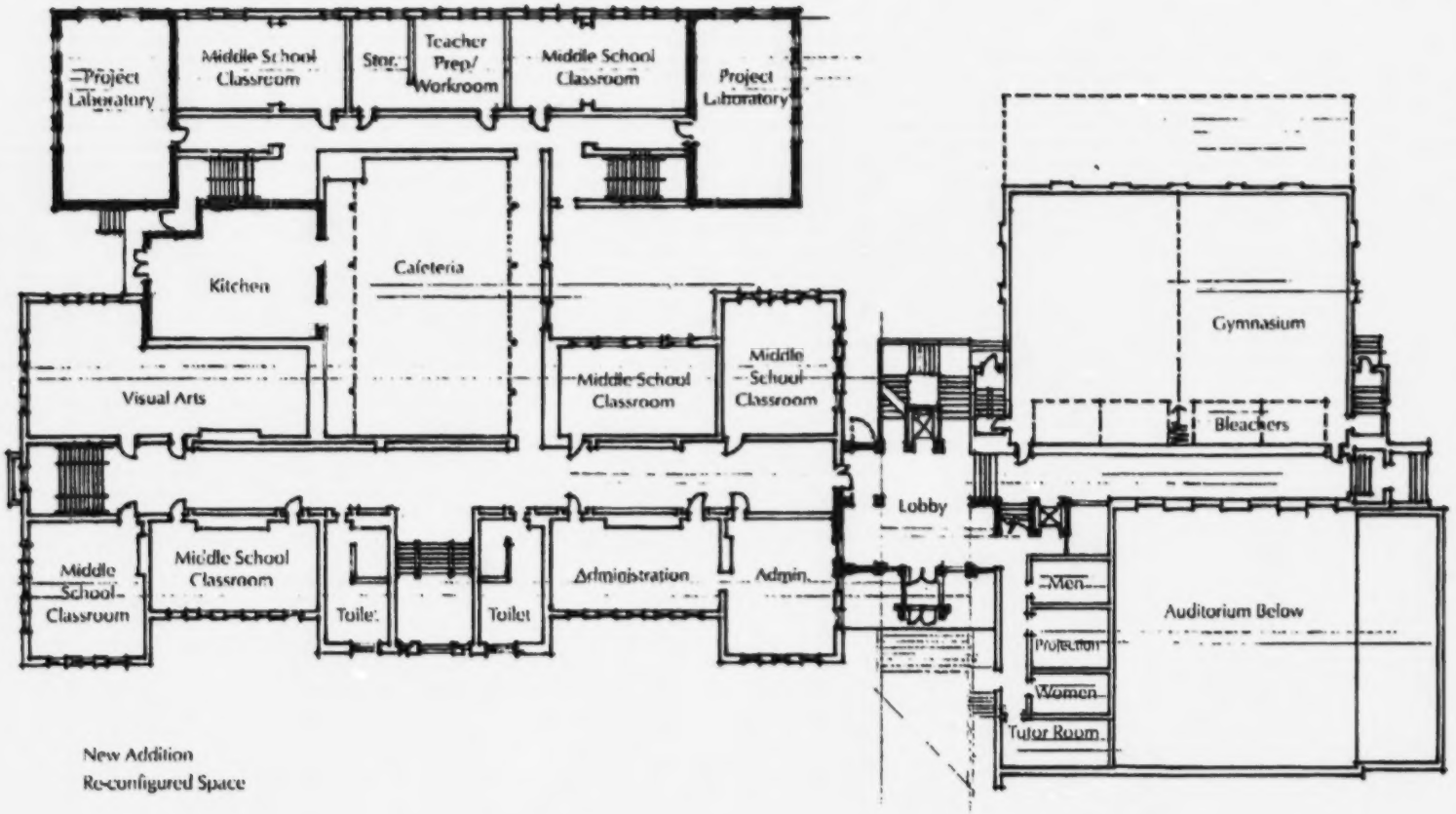

Conceptual Site Plan



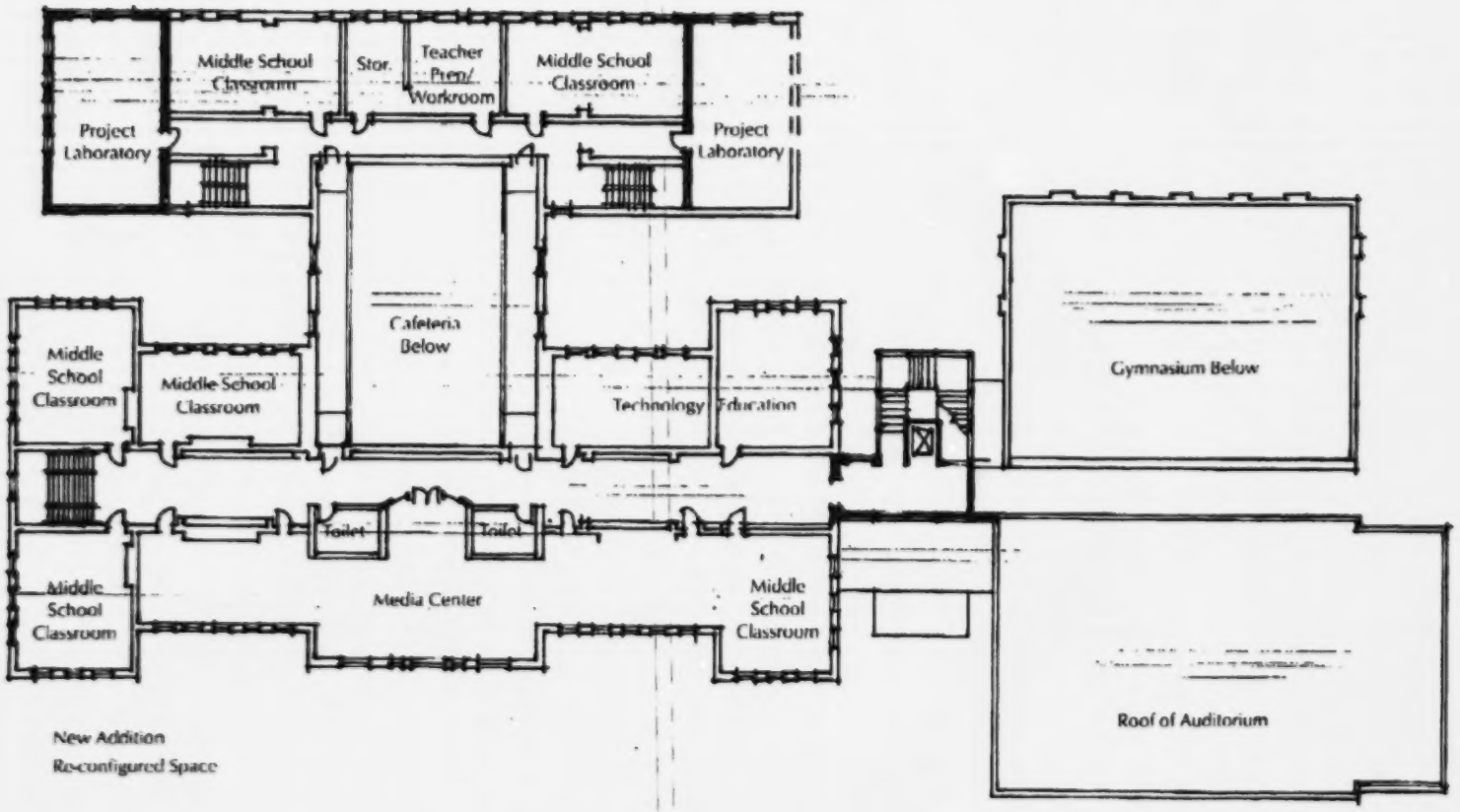

Conceptual Ground Floor Plan



52




Conceptual First Floor Plan



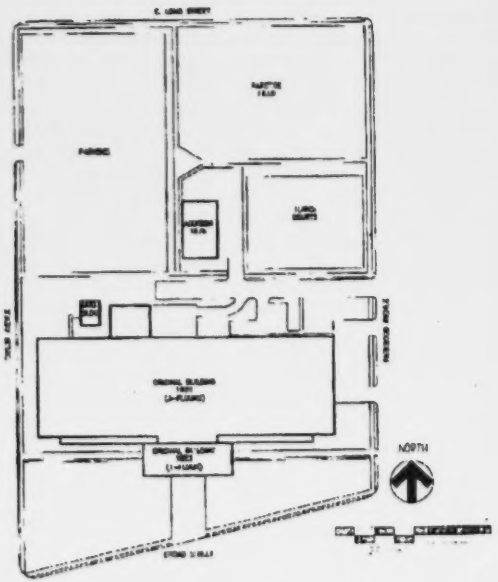

Conceptual Second Floor Plan

Artist's conception of main elevation.

Artist's conception of rear (east) view.

Artist's conception of two-story student dining space.

Artist's conception of second floor media center.



# East High School

**School Facts**

| | |
|---|---|
| Address: | 1500 East Broad Street, Columbus, Ohio |
| Current Configuration: | 9-12 |
| Date: | 1922 |
| Style: | Neo-Classical |
| Construction: | Masonry bearing, concrete flooring |
| Architect: | Howell & Thomas, Cleveland |
| Recent Construction: | 1975 band building |
| Existing Square Feet: | 138,961 total sf, including: |
| | 134,576 sf (main building) |
| | 4,385 sf (band building) |
| Site: | 19 acres |

**Columbus Public Schools**
**Master Facilities Plan**
***East High School***

Projected enrollment: 1,000 students

Proposed configuration: 9-12

Planning Area 6, Segment 2

Required size, per OSFC guidelines: 152,595 sf

*Original Master Plan Recommendation:*
REPLACEMENT
(Following 2/3 Guideline, recommended for replacement based on 74.71% renovation cost to replacement cost from OSFC Building Assessment)

*Revised Master Plan Recommendation:*
RENOVATE/ADD
(Based on waiver of 2/3 Guideline as long as total renovation costs are less than 100% of total new construction: recommended for renovation based on 83.07% renovation *total* project cost to replacement *total* project cost)

## East High School

The conceptual design for East High School meets the following requirements of the Columbus Public Schools and the Ohio School Facilities Commission:

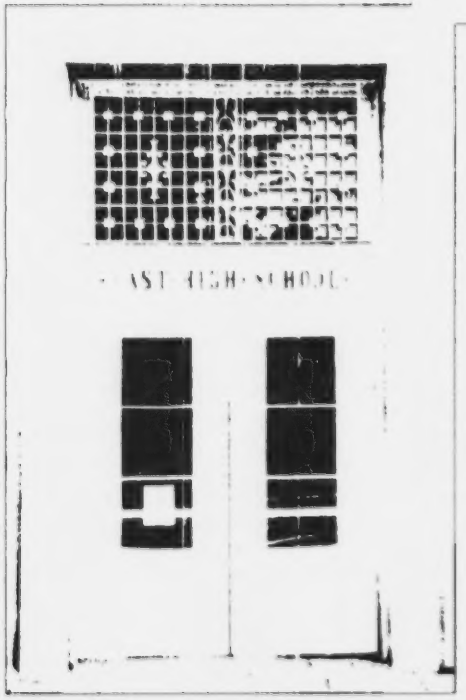
- Square footage requirements
- Program requirements for 1,000 student enrollment, grades 6-8
- Educational adequacy requirements
- Budget requirements

## Highlights of the Design:

- Significant regional and city landmark on a major thoroughfare is retained and enhanced; its monumental façade is restored
- Program of Requirements met in 163,933 square feet (125,850 square feet of existing building and 38,083 square feet of new construction)
- Wide corridors and locker alcoves remain in same locations
- Reconfiguration of classroom partitions to provide large room sizes
- Auditorium remains as a benefit of renovation (renovation LFI)
- Two separate smaller gyms (boys and girls) reconfigured to provide ideal locations for administrative space, media center, and performing arts spaces
- New 2-story atrium/commons space created at back of original building, provides central gathering space, access and connection between student activity spaces on all floors
- New two-story rear addition houses physical education program, including primary and auxiliary gyms
- Expanded and renovated cafeteria with raised ceilings, flow-through to atrium, and access to outdoor plaza
- Site plan provides separate car and bus drop-off; student, staff and

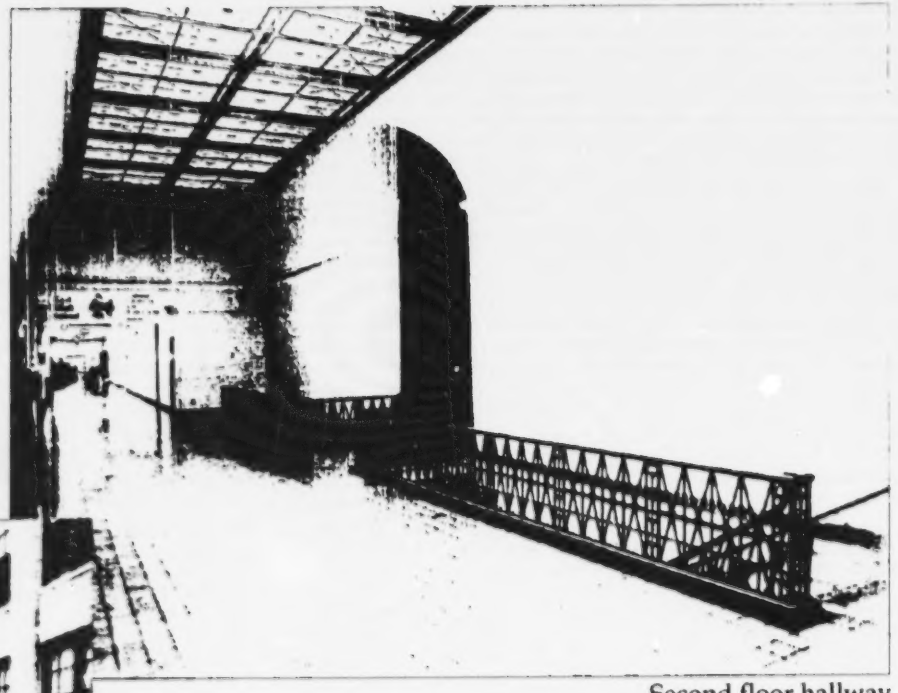
visitor parking; landscaped entrance walkways from both east and west into the atrium.

- 1975 band building removed
- Small rear appendages (boiler room, coal room, trash dock) removed



Exterior Details

Former second floor library



Second floor hallway

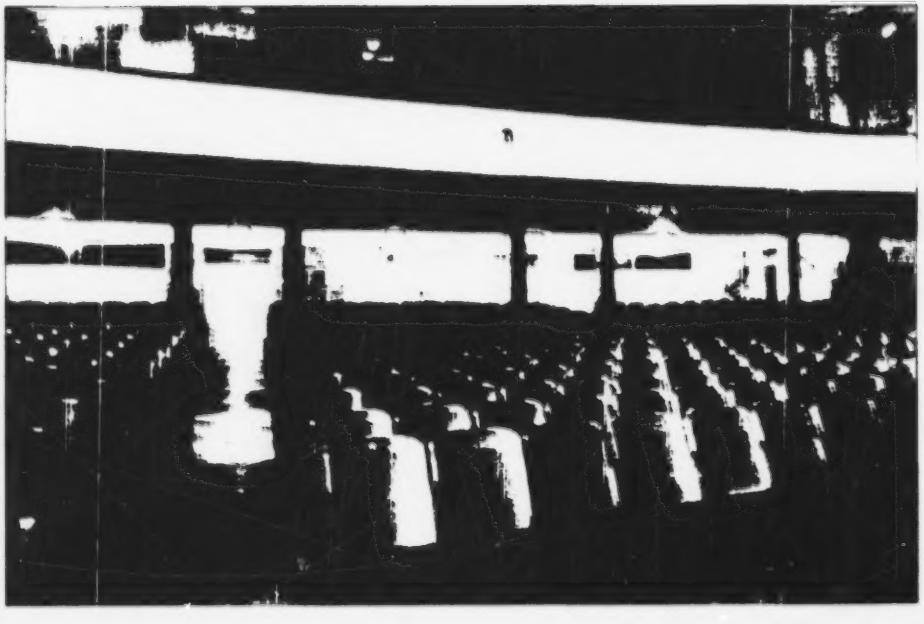
Classroom



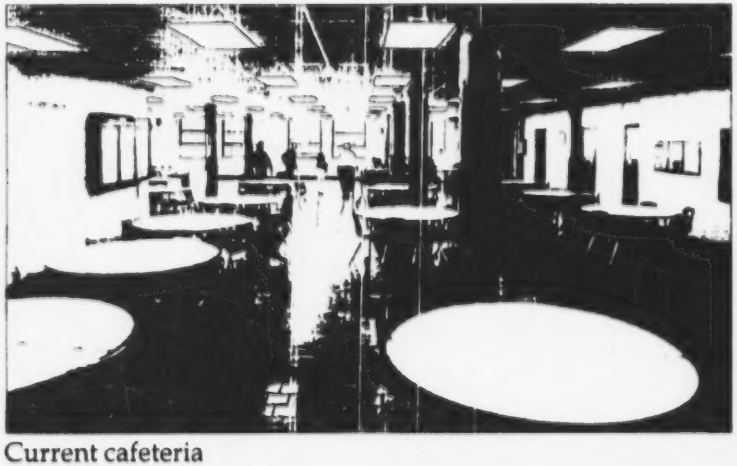
62

First floor main stair

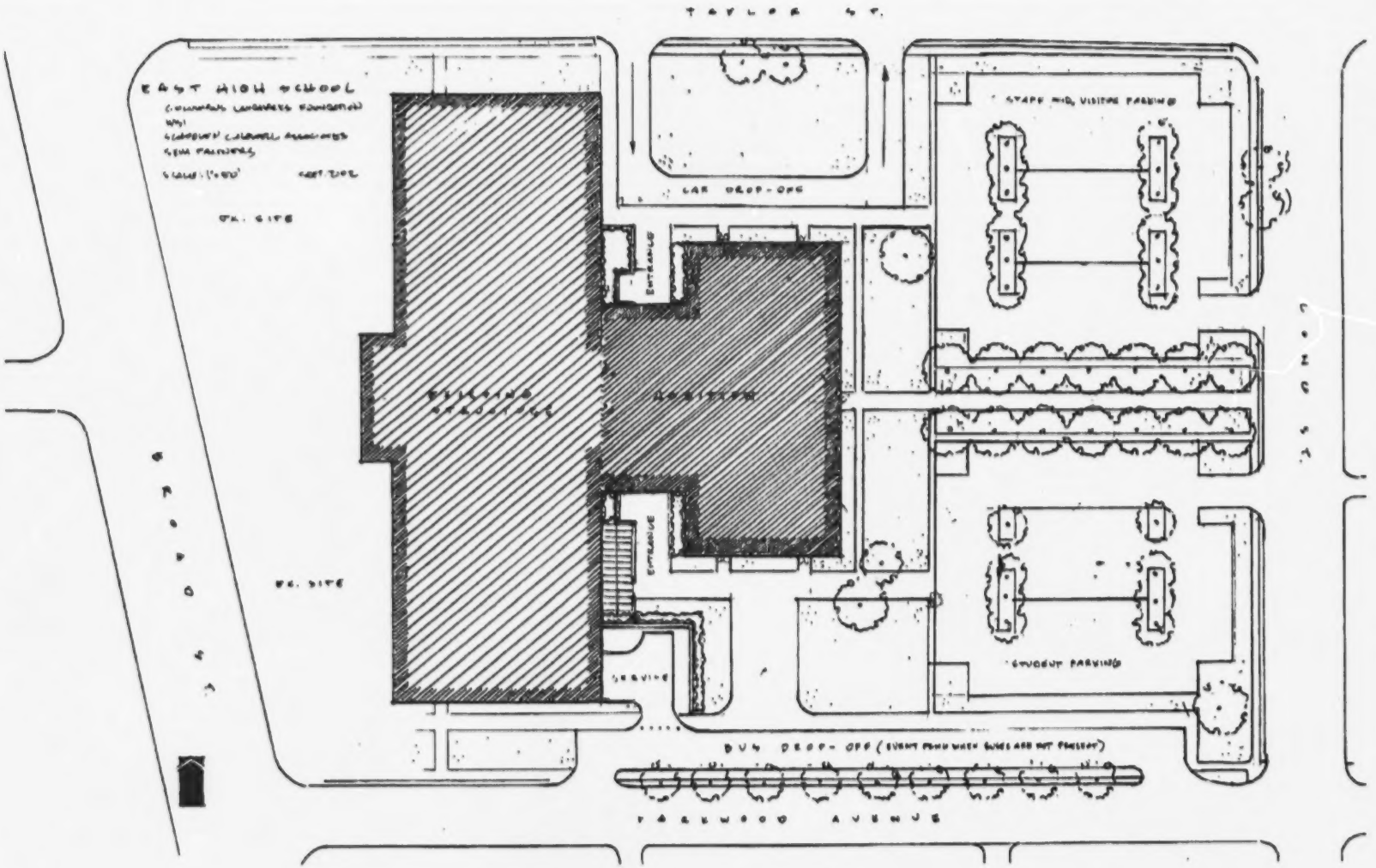
Auditorium



63

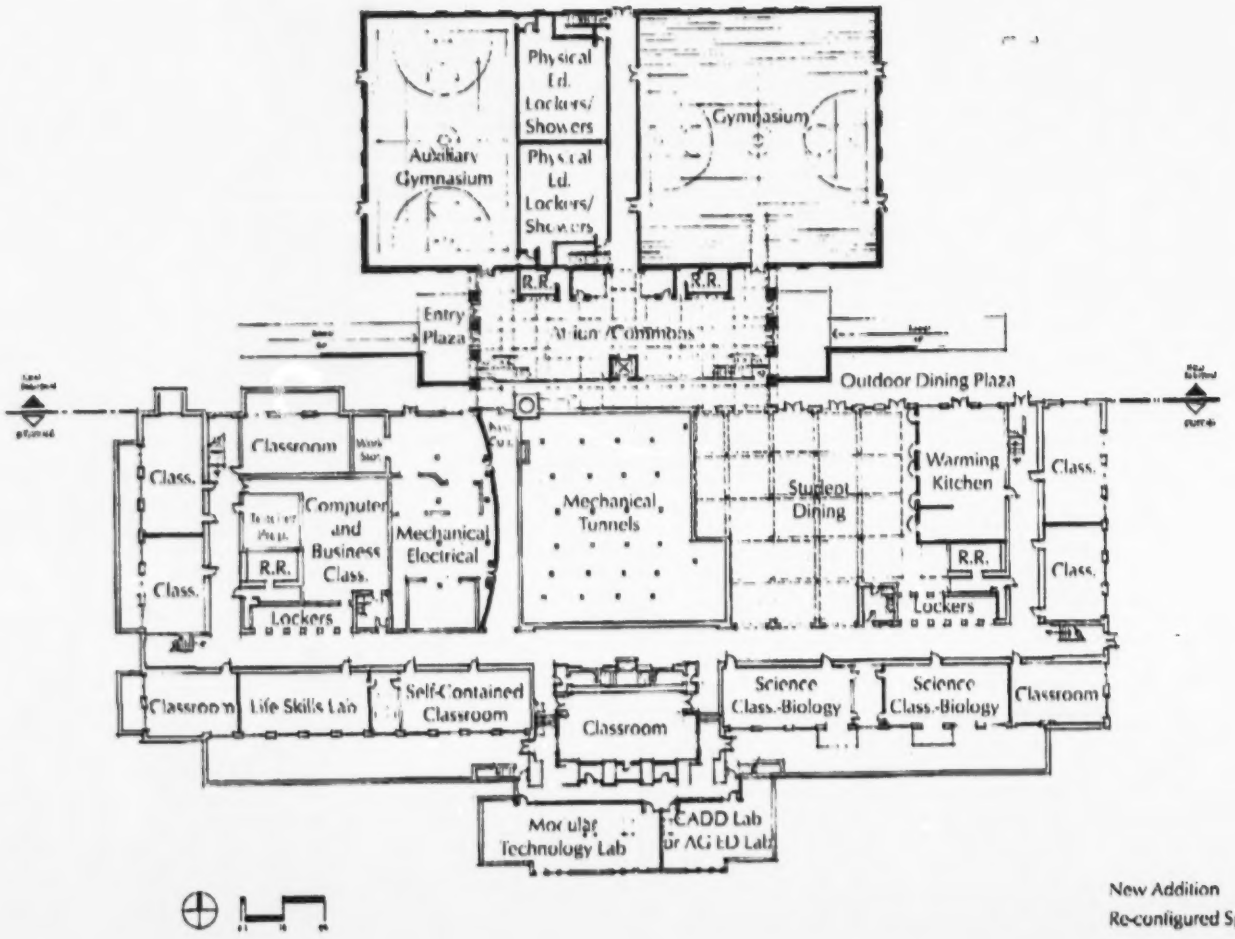


Current cafeteria

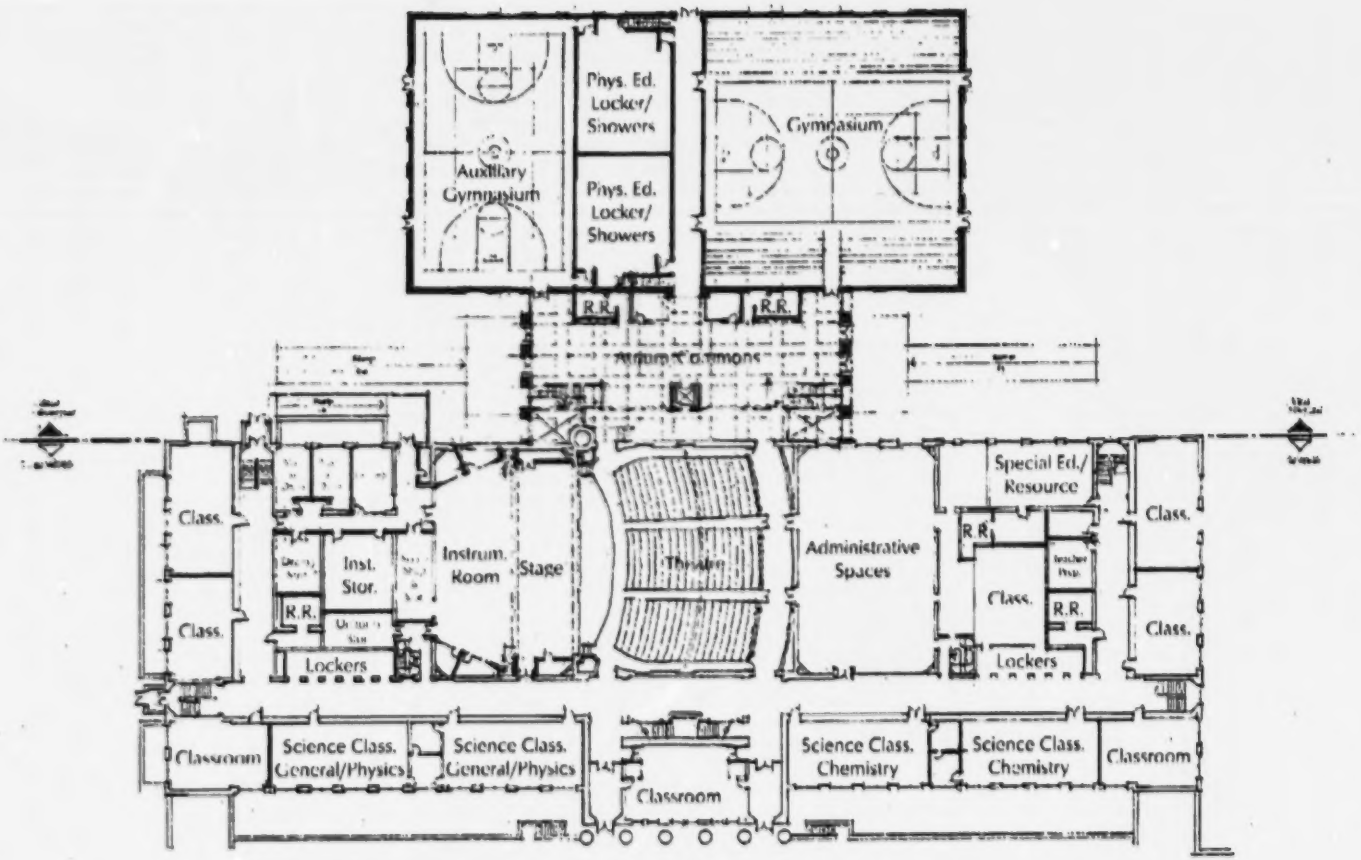



Conceptual Site Plan

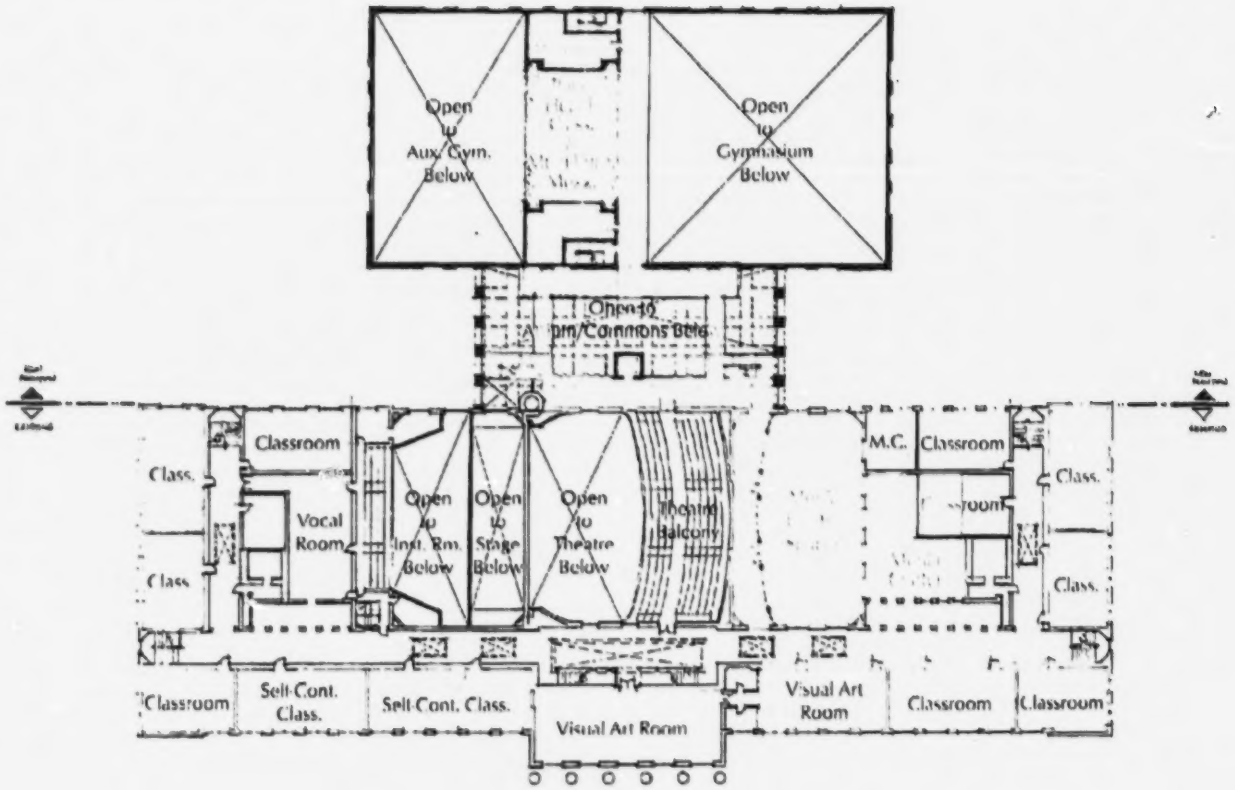
N




Conceptual Ground Floor Plan




Conceptual First Floor Plan



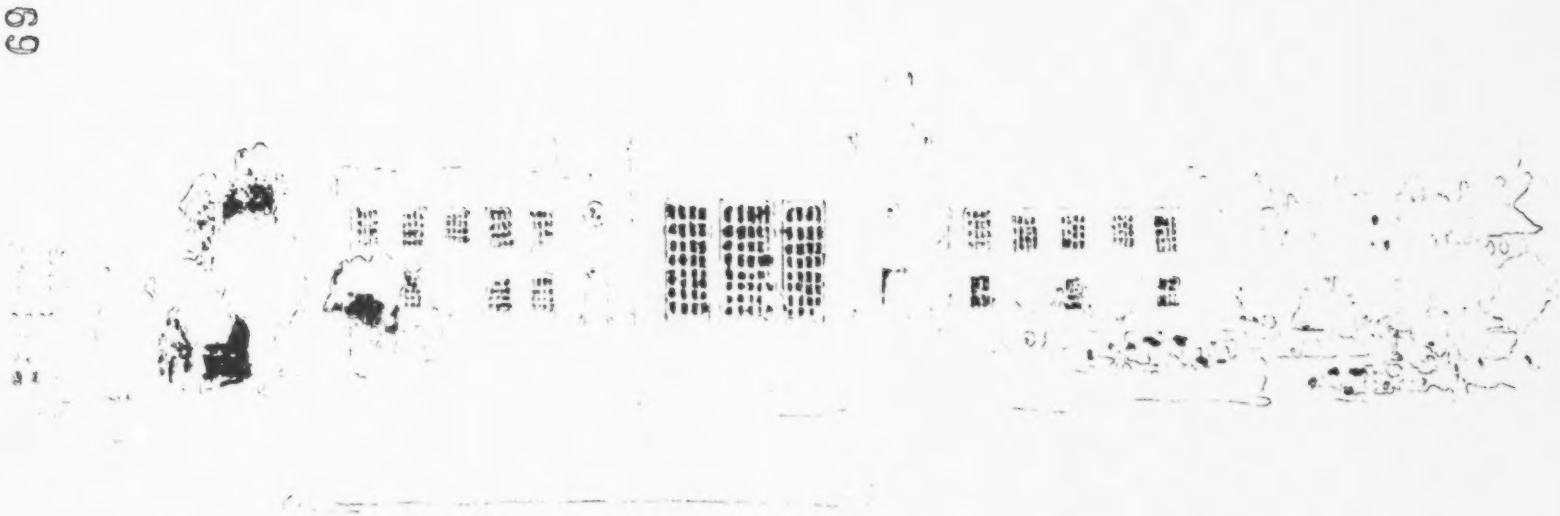

New Addition
Re-configured Space

N

Conceptual Second Floor Plan

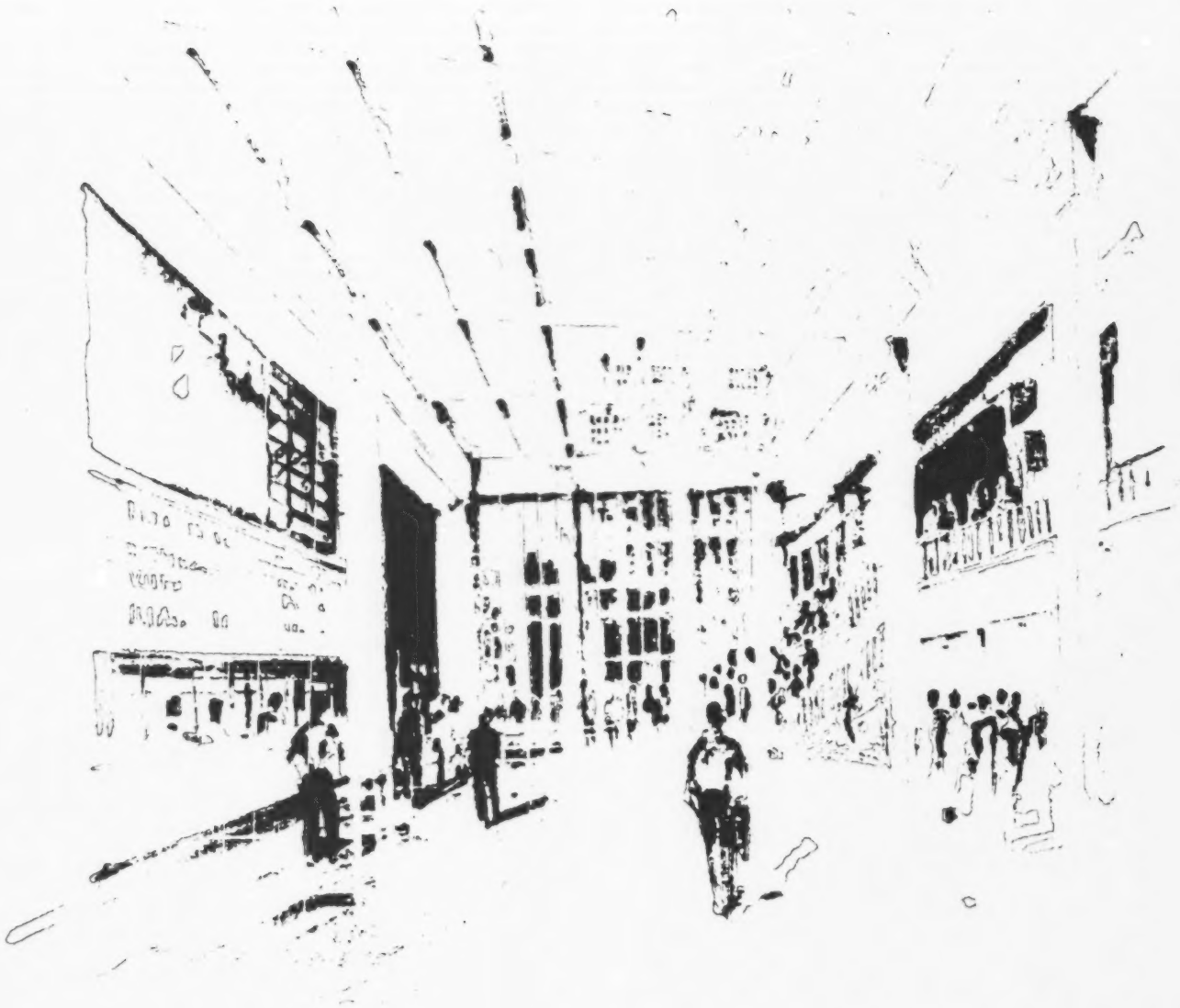
89

Artist's rendering of main façade.

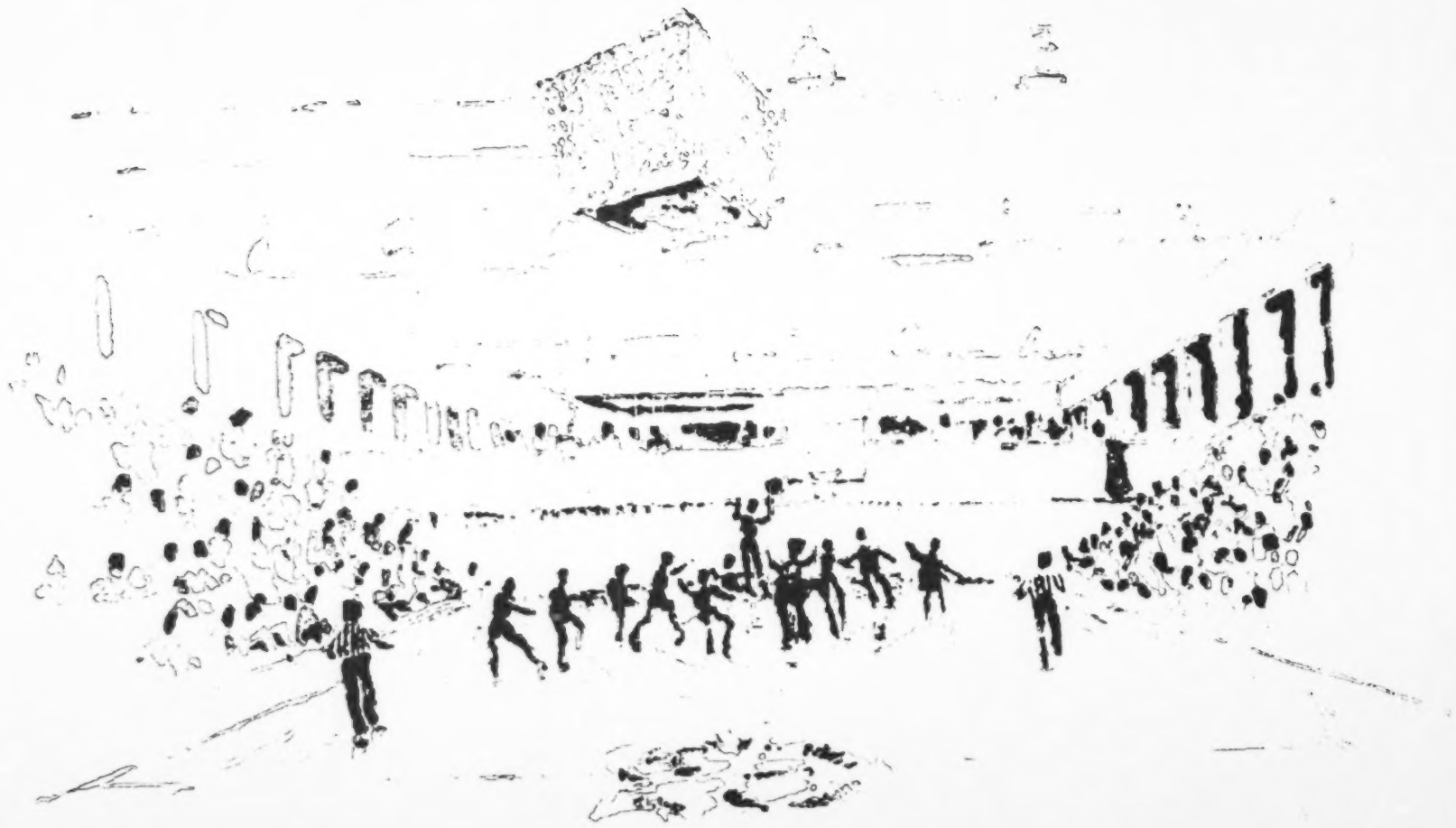


Artist's rendering of the conceptual rear elevation design.

Artist's conception of new entry/atrium/commons and new addition (at left), looking east.

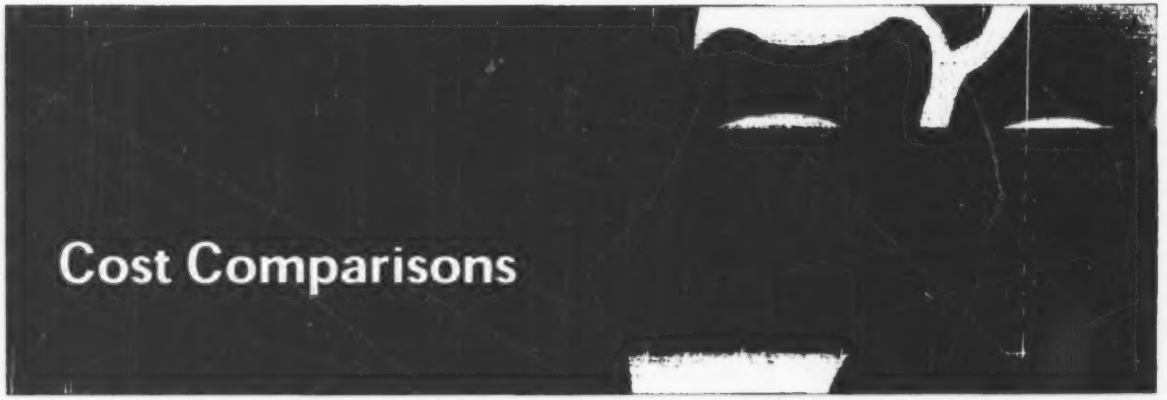


Artist's conception of interior of new atrium/commons, looking east.



Artist's conception of the new gymnasium.

Artist's rendering of the auditorium and balcony.



# Cost Comparisons



For purposes of evaluation, the **total project cost** for the renovation of each of the schools is compared with the **total project cost** associated with demolition of the old building and construction of a new school. These costs include all hazardous materials abatement required for either approach, plus all of the associated costs for complete renovation/addition of the existing school or construction of a new school, including non-construction costs and site costs. It is important to note that the work budgeted through this process is intended to meet or exceed the requirements for renovation defined in the OSFC assessment. Please see the summary budget sheet for each school in the Appendix.

For the purposes of conducting this comparison, it is important to recognize that the 2/3 guideline is waived, meaning that the Ohio School Facility Commission would participate in the school's renovation **as long as the total project cost for renovation/ addition is less than 100% of the total project cost for new construction.**

The final estimated total project costs for Renovate/Add vs. Replacement are presented below for the four schools. All relevant associated projects costs are included so that these numbers represent a true "apples to apples" comparison of Total Project Costs under these two scenarios. Importantly, the percentage of total renovation cost to total new construction cost in each case is under 100%. OSFC indicated that it would participate in renovation projects when the total project cost is less than the 100% cost of new construction.

| School | Total Project Cost for Renovate/Add * | Total Project Cost for Replacement ** | % Renovation Cost vs. New |
|---|---|---|---|
| Avondale | $7,781,447.29 | $8,382,290.39 | 92.83% |
| Burroughs | $9,946,528.82 | $11,105,352.74 | 89.57% |
| Starling | $13,022,011.00 | $15,163,307.38 | 85.88% |
| East | $24,733,653.00 | $29,774,149.57 | 83.07% |

* In addition to the Total Project Cost identified in the Consortium's budget estimate for each school (shown in the Appendix), this figure includes costs associated with "swing space" (relocating students during construction) and locally-funded initiatives (LFIs) that are not directly related to construction (such as property acquisition) for each school. The budget estimate in the Appendix already accounts for any LFIs that are related to construction.

** This figure is determined by taking the Master Plan Cost for a new building (calculated by multiplying the number of Students to be Housed x Allowable Square Feet Per Student x Allowable Cost per Square Foot) plus the associated costs for demolition of the existing building and environmental abatement, plus the cost of any locally-funded initiatives (LFIs) identified for the school. Please note that the Allowable Cost per Square Foot is not the same for every building; it depends upon the configuration and enrollment of each school.

The total project savings for renovation of these four buildings is nearly $9 million. Columbus Public Schools' share of these savings is just over $7 million, based upon the district's payment of 70% of the building costs plus 100% of other costs (such as locally-funded initiatives).

## Conclusion

The percentages that are shown in the cost comparison tell the story. The end result is that the Consortium was able to demonstrate that these four schools can be successfully renovated to address deficiencies, achieve a high standard of educational adequacy, and meet program and funding requirements to become appropriate schools for 21st century learning. The school district achieved **savings of over $7 million** for these four buildings alone, based upon the estimated total project costs. Combined with the other six buildings that are also being recommended for retention rather than replacement, **the total savings to the Columbus Public School District is over $13 million.**

This study's successful demonstration of the cost savings that can be achieved is complemented by the *added value* that historic buildings provide for the community. By working to evaluate and retain its significant historic buildings, Columbus Public Schools is maintaining the important history, architectural character and cultural expression that these buildings provide. The marriage of historic buildings with creation of a 21st century place for teaching and learning is of tremendous benefit to students, teachers, administrators, staff, parents, visitors and the community at large. Congratulations to Columbus Public Schools for taking these steps.

For additional information, contact:

**Columbus Landmarks Foundation**
**61 Jefferson Avenue**
**Columbus, Ohio 43215**
**614-221-0227**
**www.columbuslandmarks.org**

The website has information about Columbus Landmarks Foundation and its programs, as well as links to related websites.

**Columbus Public Schools**
**270 East State Street**
**Columbus, Ohio 43215**
**614-365-5000**
**www.columbus.k12.oh.us/**

Columbus Public Schools' website provides information about the district's Master Facilities Plan, and provides links to the Ohio School Facilities Commission and the Ohio Historical Society.

**Ohio Historic Preservation Office**
**567 East Hudson Street**
**Columbus, Ohio 43211**
**614-298-2000**
**www.ohiohistory.org**

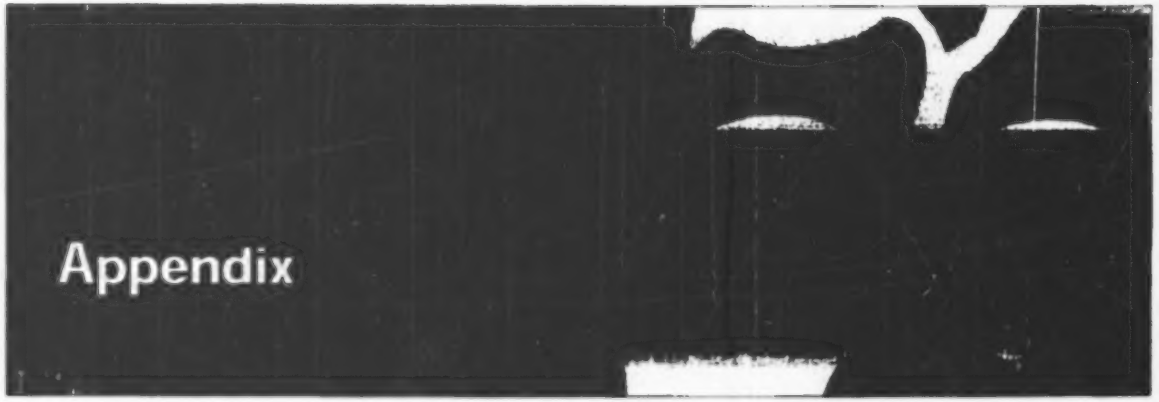
"Preserving Historic School Buildings" on the Ohio Historic Preservation Office website contains excellent guidance, along with links to other websites, about this topic: http://www.ohiohistory.org/resource/histpres/toolbox/schools.html

**Heritage Ohio**
**846½ East Main Street**
**Columbus, Ohio 43205**
**614-258-6200**
**www.heritageohio.org**

Heritage Ohio, in conjunction with the National Trust for Historic Preservation, recently published *Saving Ohio's Historic Neighborhood Schools: A Primer for School Preservation Advocates*, available in pdf format on the organization's website: http://www.heritageohio.org/advocacy/HistoricSchoolsPublication.pdf

**National Trust for Historic Preservation**
**1785 Massachusetts Ave., NW**
**Washington, DC 20036**
**202-588-6000**
**www.nationaltrust.org**

The Trust's website contains guidance on historic schools in its Issues and Initiatives section: http://www.nationaltrust.org/issues/historic_schools.html



# Appendix

## History of Columbus Public Schools

The earliest schools in Columbus were privately owned and operated. With the passage of state legislation in 1821, local communities could establish public schools. Five years later, the first public schools opened in Columbus and Franklinton. By 1838, the Columbus and Franklinton school districts merged into a single district. Legislation passed in 1845 created the first school board in Columbus, enabling the district to develop a system of schools. Dr. Asa D. Lord was hired as the first superintendent of schools in 1847. During Lord's nine years as superintendent, the district adopted the graded system, Union Schools offering two, three, or five classes – primary, secondary, intermediate, grammar, and high school, operating three school buildings. These early public schools were the North Building at Third and Long streets; Middle Building at Third and Rich streets; and the South Building at Third and Mound streets. The high school was located in the Middle Building, offering instruction in English, mathematics, Latin, and Greek. The first class graduated in 1851. In 1852, a brick building at 270 E. State St., later known as Sullivant School, was built to serve as a

centralized high school. Almost ten years later, the first building known as Central High School was built at the corner of Sixth and Broad streets.

During the period following the Civil War, the Ohio General Assembly passed the first state law calling for mandatory school attendance, requiring that children ages 8-14 attend at least 12 weeks of school. The law allowed for a number of exceptions, including children with mental deficiencies, those needed for labor, and children living at least two miles from a school. In 1873, specialized needs of a growing immigrant population statewide and nationally called for bilingual classes in German and English. In Columbus, schools such as Stewart Elementary taught German. Stewart and Second Avenue schools, both built in 1874, are the oldest school buildings remaining in the Columbus system. These schools reflect the Italianate style rectangular form with an E-shaped floor plan to create light wells to maximize light, air, and ventilation in the classroom that define school design from this period. In 1887, the Ohio Legislature repealed all laws establishing separate schools for black students, some dating back to the 1850s. Columbus Public Schools were desegregated before this mandate; African-American students begin attending their neighborhood schools in 1882.

The last decade of the 19th century brought dramatic growth and change to Columbus Public Schools, in part reflecting Progressive Era initiatives and reforms in education seen at the national and state level. The period saw a growing professionalism in education, increasing standardization in curriculum and testing, changes in courses taught, and new school designs. Columbus's longest-serving superintendent, Dr. Jacob A. Shawan, was hired in 1889. During his 27 years as superintendent, enrollment grew to 28,590 students. Contributing to this tremendous increase in student population was the 1889 compulsory school attendance law; it required that all children ages 8-14 attend at least 16 weeks of school (20 in urban districts), and that illiterate children ages 14-16 attend half-day or evening classes.

As a result of this increase in students, Columbus's first major school building campaign was undertaken. To address the large number of construction projects, David Riebel was hired as the first Columbus Public Schools architect in 1893; two years later Edward Aston was hired as the first superintendent of buildings. These fundamental changes enabled the school system to manage design and construction of buildings in-house, resulting in efficiency and cost reductions, particularly in light of the number of buildings to be built. Prior to this, Riebel and other local architects had been hired on a school-by-school basis, resulting in high costs for commissions; sources indicate that in 1889 when Frank Packard designed Fair Avenue School, his commission was $672, causing the school board to reconsider this approach to building schools.

Riebel served as school architect from 1893 until 1922. He designed nearly 40 school facilities. His buildings of the 1890s define one of the golden ages in the history of Columbus Public School buildings: large, impressive, three-story masonry buildings often punctuated with central towers, and a rich use of materials creating color, texture, and variety in the buildings. Most are in the Richardsonian Romanesque style popularized for large public buildings in the 1880s by nationally prominent architect Henry Hobson Richardson, and widely emulated by other architects after he died in 1886. These brick schools feature massive round-arched openings, often with contrasting stone trim, raised basements with stone rustication, and rooflines

punctuated with central towers and dormers. Schools from this period include new high schools at North (now Everett Arts Impact), South (now Barrett Elementary), and a host of elementary schools, such as Ohio Avenue, Southwood, Avondale, and Hubbard.

These school buildings are significant focal points in their neighborhoods. They have a commanding presence, rising above the surrounding houses much as Gothic cathedrals do. This architectural presence reflects the growing importance of education and the school in the lives of children and parents at the time they were built. Likewise, they reflect the growing professionalism in the field of education – for the first time, teachers could receive state certificates to validate their credentials. In 1907 the School of Education at the Ohio State University was formed – a college program to train teachers and administrators in education. The relationship that developed between OSU education faculty and Columbus Public Schools personnel would bring about important educational advances.

The first two decades of the 20th century saw a continuation in Progressive era reforms and education theory that is reflected in Columbus Public Schools. Most noteworthy is development of the first junior high school program, specially designed to offer a transition between elementary and high school. Prompted in part by severe overcrowding in the city's high schools, the opening of Indianola Junior High School in 1908 put Columbus Public Schools in a national spotlight. In 1907 A five-member National Education Association Committee that included Ohio State University Superintendent of Agricultural Extension A.B. Graham recommended that a new Junior High school concept. Superintendent Shawan, working closely with OSU faculty, embraced this concept and launched it in the new Riebel-designed Indianola School at 140 E. 16th Ave. in the growing neighborhood east of the University. In 1910 the 6-3-3 system (six years of elementary school, three years of junior high school, and three years of high school) was adopted district-wide. As a result, additional Columbus schools were adapted to use as junior highs (Hubbard, Avondale) or built new to include junior high facilities (Crestview). When it was built in 1914, Crestview was considered the "most up-to-date school in the city." The early 20th century had brought a number of curriculum innovations to public schools, including the introduction of domestic science, manual training, and physical education classes. Crestview was equipped with specialized facilities that reflected these innovations, including domestic science and sewing rooms, a manual training department, a specially-designed kindergarten, and a gymnasium and swimming pool. Likewise, the building featured technological advances including electric lighting and a built-in vacuum cleaning system. Following Superintendent Shawan's retirement in 1916, Columbus attracted John H. Francis from the Los Angeles public schools, a member of the NEA committee that originated the junior high concept. By the time Francis left Columbus in 1920, total enrollment had grown to 32,442.

Other reforms of the early 1900s focused on the safety and health of students and teachers in the classroom. In 1908 the most tragic school fire in U. S. history occurred at Lakeview School in Collinwood, a suburb of Cleveland, killing 172 students and two teachers. The aftermath of this fire, which received national coverage, put pressure on the legislature and local school officials to improve fire safety standards. Columbus responded quickly with its first fireproof school, Champion, built in 1909.

Reflecting a national trend toward classicism in architecture, Riebel's early 20th century designs draw more from the classical influence. Buildings such as the old West High School (now Starling Middle School), Indianola Junior High School (now Indianola Alternative Elementary School), and Reeb Elementary, all designed by Riebel, show his use of a symmetrical two-story form with raised basement, gabled roof, and classically-inspired center entrance balanced by end projections. In response to national concerns about fireproof schools after 1908, Riebel used the same classically balanced, symmetrical form, but adopted a flat roof, windows on one side of classrooms, enclosed stairways, and solid wall end projections, often relieved by decorative brickwork. Examples of this later work include Champion, Heyl, and Dana.

In the 1920s, Columbus Public Schools reacted to significant pieces of legislation: the Smith-Hughes Act that provided federal funding to offer training in agriculture, domestic science, and industrial arts; and the Bing Act that made high school attendance mandatory. Due to post World War I growth, the school district launched a $10 million building campaign. With new School Superintendent Jacob G. Collicott and new School Architect Howard Dwight Smith, 16 new buildings were built between 1921 and 1929. The centerpiece of the building campaign was construction of five new high schools all designed by architects of national, state, or local prominence: Central (designed by William B. Ittner of St. Louis); East (Howe'l and Thomas, Cleveland); North, (Frank L. Packard, Columbus); South (Richards, McCarty, and Bulford, Columbus); and West (Howard Dwight Smith). Central's Neo-Classical design set the architectural tone for the construction of other monumental public buildings in the Columbus Civic Center then developing along the Scioto River downtown. Central featured vocational training courses. The other high schools were neighborhood-based facilities, covering all quarters of the growing city, a concept which deviated from the prevailing trend in many cities at the time toward a single large, centralized urban high school such as Canton-McKinley, at the time the largest high school in the state. Columbus's high schools of the 1920s are outstanding architectural expressions displaying the popular classical and historical revival styles of the time.

Howard Dwight Smith's tenure as school architect was a period of highly artistic and distinctive buildings. One-of-a-kind designs such those of the Open Air School, Indianola Middle School, and Fairwood Elementary School display quality materials such at art tile, decorative brick, stone, terra cotta, and copper, as well as attention to detail and artistic expression in the incorporation of sculpture. Other schools of the same period - Linden-McKinley, Lincoln Park Elementary, and McGuffy are examples — show similarities in form or architectural features, but are distinctive stylistic expressions with fine materials and careful attention to details.

Columbus' growth as a city has long been tied to its aggressive policy on annexation. As a result, over its history, Columbus Public Schools has acquired buildings originally constructed to serve the city's adjacent townships or villages. Examples of these schools include the small 1904 Clinton Elementary School building, and larger buildings, which may be examples of township or consolidated schools later absorbed into the Columbus district such as Scioto Trails Elementary or Marion-Franklin High School. David Riebel designed a school in 1906 in the small village of Shepard, Ohio. When the school was annexed into the Columbus system, Howard Dwight Smith updated the

building in the 1920s with a pedimented doorway and other architectural details.

Columbus Public Schools witnessed its most phenomenal growth in the years following World War II. Lack of construction during wartime and unprecedented growth demanded a vast construction program. In 1945 the first of 13 post-war levies and bond issues to finance the school district was submitted to voters. This initiative, as well as all of the others, met with success at the ballot box. David Schackne, Jr., was architect for the school system during this period, however, other prominent local architects such as Novarre Musson, and Gilbert Coddington of the firm Brooks and Coddington designed several of the schools. The first schools built following World War II are one-of-a-kind buildings that are individual interpretations of modern design. Schools such as Indian Springs and Mohawk feature subtle architectural details with attention to materials and overall design and composition. Built in 1949-1950, North Linden Elementary is an early example of the International Style. Schools of the postwar period also reflect then-new ideas and trends in education. Weinland Park Elementary, built in 1952, features a small kindergarten facility off the front of the building, designed with a separate entrance and other features to address the special needs of the system's youngest students.

In addition to the postwar Baby Boom, the 1950s saw aggressive annexations program; between 1954 and 1962, Columbus' sesquicentennial year, the square-mile area of the city and school district more than doubled. Such dramatic growth and demands for public schools called for an accelerated design and construction approach. In order to build rapidly and economically, the system utilized a number a standardized "finger plan" school designs. These one-story linear plan buildings feature either a brick- or stone-detailed central entrance. Sited on large lots, they blend with the Cape Cod and ranch houses of their postwar suburban developments.

By the close of the "Dynamic Decade" in 1959 Columbus had the second largest public school system in Ohio. The 1962 school year enrollment approached 93,000 pupils, an increase of 53,000 students since 1947; more than 3100 teachers staffed the 136 schools making up the Columbus Public Schools.

The historically significant Columbus Public Schools reflect all major phases in the history of the district – from post-Civil War schools and monumental late 19th century edifices to examples of early 20th century innovations to the growth and impact of post World War II suburbanization and baby boom. These treasures of the school system can continue to be community and neighborhood focal points either as up-to-date quality educational facilities, or, alternatively, as adaptive reused housing or for other new purposes.

*This history was prepared by the Columbus Landmarks Foundation. Barbara Powers was the primary author, with assistance from Jim Beier, Marianne Drennen, Kathy Mast Kane, Judith L. Kitchen, Kate Matheny, Tom Matheny, Virginia McCormick, Connie Torbeck, Tom Wolf, and John York.*

## Square Footage Calculations
*Avondale Elementary School*

Projected Enrollment: 400 students
Existing Building to Remain: 33,896 square feet (Existing square feet minus demolished square feet)
Proposed Addition: 17,800 square feet
Total square footage: 51,696 square feet

**Formula used to calculate size of the allowable addition:**

| | | |
|---|---|---|
| Existing Square Feet | | 38,966 (per assessment) |
| less 371 (oversized credit provided by OSFC) | | - 371 |
| less 5,070 sf (demolition of 1974 addition) | | - 5,070 |
| | Subtotal | 33,525 |
| Adjusted Existing Square Feet | | 33,525 |
| SQUARE FEET REQUIRED (OSFC) | | 52,110 (from POR) |
| Less Adjusted Existing Square Feet | | - 33,525 |
| Square Feet Allowed for New Addition | | 18,525 |

## Square Footage Calculations
*Burroughs Elementary School*

Projected Enrollment: 550 students
Existing Building to Remain: 54,471 square feet (Existing square feet minus demolished square feet)
Proposed Addition: 16,221 square feet
Total square footage: 70,692 square feet

**Formula used to calculate size of the allowable addition:**

| | | |
|---|---|---|
| Existing Square Feet | | 58,471 (per assessment) |
| less 3,909 (oversized credit provided by OSFC) | | -3909 |
| less 4,000 sf (abandon basement coal room*) | | -4,000 |
| | Subtotal | 50,562 |
| Adjusted Existing Square Feet | | 50,562 |
| SQUARE FEET REQUIRED (OSFC) | | 66,783 (from POR) |
| Less Adjusted Existing Square Feet | | - 50,562 |
| Square Feet Allowed for New Addition | | 16,221 |

* Based on the assumption that this will be justified for OSFC.

## Square Footage Calculations
*Starling Middle School*

Projected Enrollment: 600 students
Existing Building to Remain: 88,172 square feet (Existing square feet minus demolished square feet)
Proposed Addition: 10,463 square feet
Total square footage: 98,635 square feet

**Formula used to calculate size of the allowable addition:**

| | | |
|---|---|---|
| Existing Square Feet | | 93,280 (per assessment) |
| less 11,470 (oversized credit provided by OSFC) | | - 11,470 |
| less 3,687 sf (demolition of gym infill*) | | - 3,687 |
| less 1,421 sf (demolition of 1966 addition) | | - 1,421 |
| | Subtotal | 76,702 |
| Adjusted Existing Square Feet | | 76,702 |
| SQUARE FEET REQUIRED (OSFC) | | 87,165 (from POR) |
| Less Adjusted Existing Square Feet | | - 76,702 |
| Square Feet Allowed for New Addition | | 10,463 |

* Based on the assumption that this will be justified for OSFC.

## Square Footage Calculations
*East High School*

Projected Enrollment: 1,000 students
Existing Building to Remain: 125,850 square feet (Existing square feet minus demolished square feet)
Proposed Addition: 38,083 square feet
Total square footage: 163,933 square feet

**Formula used to calculate size of the allowable addition:**

| | | |
|---|---|---|
| Existing Square Feet | | 135,969 |
| less 8,555 (oversized credit provided by OSFC) | | -8,555 |
| less 2,916 (oversized credit assumed for fixed seat balcony above auditorium- not counted in oversized credit provided by OSFC*) | | -2,916 |
| | Subtotal | 124,498 |
| less 4,385 sf (demolition of band building) | | -4,385 |
| less 2,478 sf (demolition of boiler room*) | | -2,478 |
| less 2,856 sf (demolition of coal room*) | | -2,856 |
| less 400 sf (demolition of trash dock*) | | - 400 |
| Adjusted Existing Square Feet | | 114,379 |
| SQUARE FEET REQUIRED (OSFC) | | 152,462 (from POR) |
| Less Adjusted Existing Square Feet | | -114,379 |
| Square Feet Allowed for New Addition: | | 38,083 |

* Based on the assumption that this will be justified for OSFC.

# Program of Requirements for Avondale Elementary

HISTORICAL BUILDING STUDY
COLUMBUS PUBLIC SCHOOLS MASTER PLAN
PROJECT NO.: 202080.01

K-5 400 STUDENT 2FL ES (Avondale ES)
23 Students/K-5 Classroom
SUMMARY OF SPACES

**WORKSHEET**

| | | | |
|---|---|---|---|
| Enter Grade Configuration | | | K-5 |
| Enter Student Capacity | | | 400 |
| Square Feet Per Student from Page 2000-2 | | | 125.00 |
| **Total Gross Square Feet Funded** | | | 50,000 |
| **SELECT ONE** ⟶ ○ Single Story Building ◉ Multistory Building | | | |
| *Plus Vertical Circulation (for Multistory Buildings) Area Allowable* | | | 876 |
| **Total Adjusted POR Gross Square Footage** | | | 50,876 |
| **PROGRAM AREA** | **New SF** | **Existing SF** | **TOTAL SF** |
| E-AC Academic Core Spaces | 16,000 | 0 | 16,000 |
| E-SE Special Education Spaces | 2,050 | 0 | 0 |
| E-AD Administrative Spaces | 2,350 | 0 | 2,350 |
| E-MC Media Center Spaces | 2,950 | 0 | 2,950 |
| E-VA Visual Arts Spaces | 1,400 | 0 | 1,400 |
| E-MU Music Spaces | 1,200 | 0 | 1,200 |
| E-PE Physical Education Spaces | 3,700 | 0 | 3,700 |
| E-SD Student Dining Spaces | 4,050 | 0 | 4,050 |
| E-FS Food Service Spaces | 1,051 | 0 | 1,050 |
| E-CU Custodial Spaces | 300 | 0 | 300 |
| E-BS Building Services | 12,322 | 0 | 0 |
| **Facility Total** | **47,373** | **0** | **33,000** |
| Construction Factor (10% multiplied by the facility total) | 0.10 | 0.10 | 0.10 |
| **Gross Square Feet Developed** | **52,110** | **0** | **36,300** |
| **Less LFI Classroom AGSF** [1] | **(1,291)** | | |
| **OSDM Gross Square Feet Developed** | **50,819** | | |
| Difference of SF developed from SF allowable | 57 | Under | |

Vertical Circulation (multistory buildings) cannot be selected unless written approval is given by the CM and OSFC. It refers only to stairways/stairtowers, monumental stairs, elevators and elevator eqpt rooms.

The Existing SF column is only used in projects where there are building additions.

Notes
1. CPS LFI classroom at 900 SF plus adjustments for 274 SF building services, and 117 SF net-to-gross conversion.



# Program of Requirements for Burroughs Elementary

HISTORICAL BUILDING STUDY
COLUMBUS PUBLIC SCHOOLS MASTER PLAN
PROJECT NO.: 202080.01

PK-5 550 STUDENT 2FL ES (Burroughs ES)
23 Students/K-5 Classroom
SUMMARY OF SPACES

**WORKSHEET**

| | | | |
|---|---|---|---|
| Enter Grade Configuration | | | PK-5 |
| Enter Student Capacity | | | 550 |
| Square Feet Per Student from Page 2000-2 | | | 117.31 |
| **Total Gross Square Feet Funded** | | | 64,520 |
| **SELECT ONE** ⟶ ○ Single Story Building ◉ Multistory Building | | | |
| *Plus Vertical Circulation (for Multistory Buildings) Area Allowable* | | | 1,124 |
| **Total Adjusted POR Gross Square Footage** | | | 65,644 |
| **PROGRAM AREA** | **New SF** | **Existing SF** | **TOTAL SF** |
| E-AC Academic Core Spaces | 22,910 | 0 | 22,910 |
| E-SE Special Education Spaces | 2,050 | 0 | 0 |
| E-AD Administrative Spaces | 2,985 | 0 | 2,985 |
| E-MC Media Center Spaces | 3,700 | 0 | 3,700 |
| E-VA Visual Arts Spaces | 1,425 | 0 | 1,425 |
| E-MU Music Spaces | 1,200 | 0 | 1,200 |
| E-PE Physical Education Spaces | 4,800 | 0 | 4,800 |
| E-SD Student Dining Spaces | 4,150 | 0 | 4,150 |
| E-FS Food Service Spaces | 1,351 | 0 | 1,350 |
| E-CU Custodial Spaces | 400 | 0 | 400 |
| E-BS Building Services | 15,740 | 0 | 0 |
| **Facility Total** | **60,711** | **0** | **47,970** |
| Construction Factor (10% multiplied by the facility total) | 0.10 | 0.10 | 0.10 |
| **Gross Square Feet Developed** | **66,783** | **0** | **47,212** |
| **Less LFI Classroom AGSF** [1] | **(1,291)** | | |
| **OSDM Gross Square Feet Developed** | **65,492** | | |
| Difference of SF developed from SF allowable | 153 | Under | |

Vertical Circulation (multistory buildings) cannot be selected unless written approval is given by the CM and OSFC. It refers only to stairways/stairtowers, monumental stairs, elevators and elevator eqpt rooms.

The Existing SF column is only used in projects where there are building additions.

Notes
1. CPS LFI classroom at 900 SF plus adjustments for 274 SF building services, and 117 SF net-to-gross conversion.

# Program of Requirements for Starling Middle School

HISTORICAL BUILDING STUDY
COLUMBUS PUBLIC SCHOOLS MASTER PLAN
PROJECT NO.: 202080.01

6-8 600 STUDENT 2FL MS (Starling MS)
23 Students/Teaching Station
**SUMMARY OF SPACES**

**WORKSHEET**

| | | | | |
|---|---|---|---|---|
| Enter Grade Configuration: | | | 6-8 | |
| Enter Student Capacity | | | 600 | |
| Square Feet Per Student from Page 2000-3 | | | 142.88 | |
| **Total Gross Square Feet Funded** | | | 85,725 | |
| **SELECT ONE** ⟶ ○ Single Story Building ◉ Multistory Building | | | | |
| *Plus Vertical Circulation (for Multistory Buildings) Area Allowable* | | | 1,458 | |
| **Total Adjusted POR Gross Square Footage** | | | 87,183 | |

Vertical Circulation (multistory buildings) cannot be selected unless written approval is given by the CM and OSFC. It refers only to stairways/stairtowers, monumental stairs, elevators and elevator eqpt rooms.

| | PROGRAM AREA | New SF | Existing SF | TOTAL SF | Teach Stations | |
|---|---|---|---|---|---|---|
| M-AC | Academic Core Spaces | 24,450 | 0 | 24,450 | 24 | |
| M-SE | Special Education Spaces | 3,250 | 0 | 3,250 | - | |
| M-AD | Administrative Spaces | 3,185 | 0 | 3,185 | - | |
| M-MC | Media Center Spaces | 4,400 | 0 | 4,400 | - | |
| M-VA | Visual Arts Spaces | 1,450 | 0 | 1,450 | 1 | |
| M-MU | Music Spaces | 2,800 | 0 | 2,800 | 2 | |
| M-TE | Technology Education Spaces | 1,450 | 0 | 1,450 | 1 | |
| M-FCS | Family and Consumer Science Spaces | 0 | 0 | 0 | 0 | |
| M-PE | Physical Education Spaces | 10,050 | 0 | 10,050 | 1 | |
| M-SD | Student Dining Spaces | 4,450 | 0 | 4,450 | - | |
| M-FS | Food Service Spaces | 2,350 | 0 | 2,350 | - | |
| M-CU | Custodial Spaces | 400 | 0 | 400 | - | |
| M-BS | Building Services | 20,192 | 0 | 20,192 | - | |
| **Facility Total** | | 78,527 | 0 | 78,527 | 29 | x 23 |
| Construction Factor (11% multiplied by the facility total) | | 0.11 | 0.11 | 0.11 | 667 | x .90 |
| **Gross Square Feet Developed** | | 87,165 | 0 | 87,165 | 600 | Capacity |
| **Less LFI Classroom(s) AGSF** [1] | | 0 | | | | |
| **OSDM Gross Square Feet Developed** | | 87,165 | | | | |
| Difference of SF developed from SF allowable | | 18 | Under | | | |

The Existing SF column is only used in projects where there are building additions

Notes
1. 0 ea. CPS LFI classroom at 0 SF/ea totaling 0 SF plus adjustments for 0 SF building services, and 0 SF net-to-gross conversion

*Ohio School Design Manual 4-4-02* — Columbus School Design Association
*Ohio School Facilities Commission* — 2200-1 — CPS MP 600 6-8 MS 2FL 23 PORA [illegible].xls

# Program of Requirements for East High School

East High School
**SUMMARY OF SPACES**

**WORKSHEET**

| | | | | |
|---|---|---|---|---|
| **Enter Grade Configuration** | | | 9 - 12 | |
| Enter Student Capacity | | | 898 | |
| Square Feet Per Student from Page 2000-4 | | | 167 | |
| **Total Gross Square Feet Funded** | | | 149,966 | |
| **SELECT ONE** ⟶ ○ Single Story Building ◉ Multistory Building | | | | |
| *Plus Vertical Circulation (for Multistory Buildings) Area Allowable* | | | 2,553 | |
| **Total Adjusted POR Gross Square Footage** | | | 152,519 | |

Vertical Circulation (multistory buildings) cannot be selected unless written approval is given by the CM and OSFC. It refers only to stairways/stairtowers, monumental stairs, elevators and elevator eqpt rooms

| | Program Area | New SF | Existing SF | TOTAL SF |
|---|---|---|---|---|
| H-AC | Academic Core Spaces | 34,050 | 0 | 34,050 |
| H-SE | Special Education Spaces | 3,850 | 0 | 3,850 |
| H-AD | Administrative Spaces | 4,870 | 0 | 4,870 |
| H-MC | Media Center Spaces | 5,663 | 0 | 5,663 |
| H-VA | Visual Arts Spaces | 3,300 | 0 | 3,300 |
| H-MU | Music Spaces | 4,730 | 0 | 4,730 |
| H-TE | Technology Education Spaces | 2,000 | 0 | 2,000 |
| H-BE | Business Education Spaces | 1,450 | 0 | 1,450 |
| H-FCS | Family and Consumer Science Spaces | 1,650 | 0 | 1,650 |
| H-PE | Physical Education Spaces | 27,620 | 0 | 27,620 |
| H-SD | Student Dining Spaces | 10,833 | 0 | 10,833 |
| H-FS | Food Service Spaces | 1,796 | 0 | 1,796 |
| H-CU | Custodial Spaces | 500 | 0 | 500 |
| H-BS | Building Services | 34,015 | 0 | 34,015 |
| **Facility Total** | | 138,126 | 0 | 138,126 |
| Construction Factor (12% multiplied by the facility total) | | 0.12 | 0.12 | 0.12 |
| **Gross Square Feet Developed** | | 152,462 | 0 | 152,462 |
| Difference of SF developed from SF allowable | | 57 | | |

The Existing SF column is only used in projects where there are building additions

*Ohio School Design Manual* — 4-1-02
*Ohio School Facilities Commission* — 2300-1

Note: Student capacity for East is 1,000 students, but the POR is calculated for 898 students to account for the fact that some of the students are part-time.

## AVONDALE ELEMENTARY SCHOOL

**156 Avondale Avenue**
**Columbus, Ohio 43222**
**ADDITIONS AND ALTERATIONS**
**RENOVATION - NEW ADDITION BUDGET**

Square Foot Cost & Pecentages By Construction Division

| CSI | DESCRIPTION | COST | S.F. COSTS | PERCENTAGE |
|---|---|---|---|---|
| DIV 1 | General Conditions | $ 283,017.03 | $ 5.47 | 3.93% |
| DIV 2 | Demolition and Sitework | $ 158,315.36 | $ 3.06 | 2.20% |
| DIV 3 | Concrete | $ 253,956.31 | $ 4.91 | 3.52% |
| DIV 4 | Masonry | $ 869,890.00 | $ 16.83 | 12.07% |
| DIV 5 | Structural and Misc. Steel | $ 257,609.00 | $ 4.98 | 3.57% |
| DIV 6 | Woods and Plastics | $ 187,187.00 | $ 3.62 | 2.60% |
| DIV 7 | Thermal and Moisture Protection | $ 121,907.50 | $ 2.36 | 1.69% |
| DIV 8 | Doors and Windows | $ 142,175.00 | $ 2.75 | 1.97% |
| DIV 9 | Finishes | $ 549,105.26 | $ 10.62 | 7.62% |
| DIV 10 | Specialties | $ 61,710.00 | $ 1.19 | 0.86% |
| DIV 11 | Equipment | $ 84,700.00 | $ 1.64 | 1.18% |
| DIV 12 | Furnishing | $ 4,840.00 | $ 0.09 | 0.07% |
| DIV 13 | Special Construction | $ - | $ - | 0.00% |
| DIV 14 | Conveying Systems | $ 54,450.00 | $ 1.05 | 0.76% |
| DIV 15 | Mechanical Systems | $ 1,472,497.40 | $ 28.48 | 20.43% |
| DIV 16 | Electric | $ 1,184,386.72 | $ 22.91 | 16.43% |
| | **Total Construction Costs:** | **$ 5,685,847** | **$ 109.99** | **78.90%** |
| | | | | |
| | PLUS COST OF LOOSE FURNISHINGS | $ 336,024.00 | $ 6.50 | 4.66% |
| | PLUS DEMOLITION OF ADDITIONS | $ 26,035.00 | $ 0.50 | 0.36% |
| | PLASTER REPLACEMENT AS A RESULT OF HAZARDOUS MATERIALS ABATEMENT | $ 10,500 | $ 0.20 | 0.15% |
| | TWO HOUR CEILING FIRE SEPARATION | $ 60,000 | $ 1.16 | 0.83% |
| | PLUS HAZARDOUS MATERIALS ABATEMENT | $ 78,614.00 | $ 1.52 | 1.09% |
| | PLUS WARM, SAFE AND DRY | $ 25,530.00 | $ 0.49 | 0.35% |
| | PLUS NON-CONSTRUCTIONS COST @ THE TOTAL RATE OF 15.81% | $ 983,817 | $ 19.03 | 13.65% |
| | Totals: | 7,206,566 | $ 139.40 | 100.00% |

| | |
|---|---|
| **Total Project Cost:** | **$ 7,206,566** |
| **Total Construction Area S.F:** | **51,698** |
| **Total Project Cost Per S.F:** | **$139.40** |

## BURROUGHS ELEMENTARY SCHOOL

**2585 Sullivant Avenue**
**Columbus, Ohio 43204**
**ADDITIONS AND ALTERATIONS**
**RENOVATION - NEW ADDITION BUDGET**

Square Foot Cost & Pecentages By Construction Division

| CSI | DESCRIPTION | COST | S.F. COSTS | PERCENTAGE |
|---|---|---|---|---|
| DIV 1 | General Conditions | $ 298,823.43 | $ 4.23 | 3.13% |
| DIV 2 | Demolition and Sitework | $ 373,188.41 | $ 5.28 | 3.91% |
| DIV 3 | Concrete | $ 310,620.00 | $ 4.39 | 3.25% |
| DIV 4 | Masonry | $ 659,760.00 | $ 9.33 | 6.91% |
| DIV 5 | Structural and Misc. Steel | $ 170,460.00 | $ 2.41 | 1.79% |
| DIV 6 | Woods and Plastics | $ 76,260.00 | $ 1.08 | 0.80% |
| DIV 7 | Thermal and Moisture Protection | $ 108,900.00 | $ 1.54 | 1.14% |
| DIV 8 | Doors and Windows | $ 663,780.00 | $ 9.39 | 6.95% |
| DIV 9 | Finishes | $ 605,285.40 | $ 8.56 | 6.34% |
| DIV 10 | Specialties | $ 73,680.00 | $ 1.04 | 0.77% |
| DIV 11 | Equipment | $ 82,200.00 | $ 1.16 | 0.86% |
| DIV 12 | Furnishing | $ 18,600.00 | $ 0.26 | 0.19% |
| DIV 13 | Special Construction | $ - | $ - | 0.00% |
| DIV 14 | Conveying Systems | $ 54,000.00 | $ 0.76 | 0.57% |
| DIV 15 | Mechanical Systems | $ 1,827,930.00 | $ 25.86 | 19.14% |
| DIV 16 | Electric | $ 1,411,906.12 | $ 19.97 | 14.79% |
| | **Total Construction Costs:** | **$ 6,735,339** | **$ 95.28** | **70.54%** |
| | | | | |
| | PLUS COST OF LOOSE FURNISHINGS | $ 459,498.00 | $ 6.50 | 4.81% |
| | PLUS DEMOLITION OF ADDITIONS | $ - | $ - | 0.00% |
| | PLUS HAZARDOUS MATERIALS ABATEMENT | $ 667,784.00 | $ 9.45 | 6.99% |
| | RESULT OF HAZARDOUS MATERIALS ABATEMENT | $ 236,250.00 | $ 3.34 | 2.47% |
| | PLUS WARM, SAFE AND DRY | $ 145,692.00 | $ 2.06 | 1.53% |
| | PLUS NON-CONSTRUCTIONS COST @ THE TOTAL RATE OF 15.81% | $ 1,303,465.47 | $ 18.44 | 13.65% |
| | Totals: | $ 9,548,028.82 | $ 135.07 | 100.00% |

| | |
|---|---|
| **Total Project Cost:** | **$ 9,548,029** |
| **Total Construction Area S.F:** | **70,692** |
| **Total Project Cost Per S.F:** | **$135.07** |

## STARLING MIDDLE SCHOOL

**120 South Central Avenue**
**Columbus, Ohio 43222**
**ADDITIONS AND ALTERATIONS**
**RENOVATION - NEW ADDITION BUDGET**

Square Foot Cost & Pecentages By Construction Division

| CSI | DESCRIPTION | COST | S.F. COSTS | PERCENTAGE |
|---|---|---|---|---|
| DIV 1 | General Conditions | $ 307,852.52 | $ 3.93 | 3.40% |
| DIV 2 | Demolition and Sitework | $ 364,696.00 | $ 3.70 | 3.20% |
| DIV 3 | Concrete | $ 259,896.00 | $ 2.63 | 2.28% |
| DIV 4 | Masonry | $ 495,030.00 | $ 5.02 | 4.35% |
| DIV 5 | Structural and Misc. Steel | $ 408,120.00 | $ 4.14 | 3.58% |
| DIV 6 | Woods and Plastics | $ 122,232.00 | $ 1.24 | 1.07% |
| DIV 7 | Thermal and Moisture Protection | $ 279,624.00 | $ 2.83 | 2.45% |
| DIV 8 | Doors and Windows | $ 505,520.00 | $ 5.14 | 4.45% |
| DIV 9 | Finishes | $ 869,262.00 | $ 8.81 | 7.63% |
| DIV 10 | Specialties | $ 177,900.00 | $ 1.80 | 1.56% |
| DIV 11 | Equipment | $ 144,000.00 | $ 1.46 | 1.26% |
| DIV 12 | Furnishing | $ 76,800.00 | $ 0.78 | 0.67% |
| DIV 13 | Special Construction | $ - | $ - | 0.00% |
| DIV 14 | Conveying Systems | $ 78,000.00 | $ 0.79 | 0.68% |
| DIV 15 | Mechanical Systems | $ 2,515,926.00 | $ 25.51 | 22.08% |
| DIV 16 | Electric | $ 1,938,249.00 | $ 19.65 | 17.01% |
| | Total Construction Costs: | $ 8,623,847 | $ 87.43 | 75.70% |
| | | | | |
| | PLUS COST OF LOOSE FURNISHINGS | $ 493,175.00 | $ 5.00 | 4.33% |
| | PLUS DEMOLITION OF ADDITIONS | $ 28,540.00 | $ 0.29 | 0.25% |
| | PLUS HAZARDOUS MATERIALS ABATEMENT | $ 418,699.00 | $ 4.24 | 3.68% |
| | PLASTER REPLACEMENT AS A RESULT OF HAZARDOUS MATERIALS ABATEMENT | $ 41,280.00 | $ 0.42 | 0.36% |
| | PLUS WARM, SAFE AND DRY - FOOTNOTE #1 | $ 231,792.00 | $ 2.35 | 2.03% |
| | PLUS NON-CONSTRUCTIONS COST @ THE TOTAL RATE OF 15.81% | $ 1,555,277.53 | $ 15.77 | 13.65% |
| | Totals : | $11,392,580.08 | $ 115.50 | 100.00% |

| | |
|---|---|
| **Total Project Cost:** | $ 11,392,580 |
| **Total Construction Area S.F:** | 98,635 |
| **Total Project Cost Per S.F:** | $115.50 |

## EAST HIGH SCHOOL

**1500 East Broad Street**
**Columbus, Ohio 43215**
**ADDITIONS AND ALTERATIONS**
**RENOVATION - NEW ADDITION BUDGET**

Square Foot Cost & Pecentages By Construction Division

| CSI | DESCRIPTION | COST | S.F. COSTS | PERCENTAGE |
|---|---|---|---|---|
| DIV 1 | General Conditions | $ 817,009.98 | $ 4.98 | 3.53% |
| DIV 2 | Demolition and Sitework | $ 1,103,400.00 | $ 6.73 | 4.77% |
| DIV 3 | Concrete | $ 533,250.00 | $ 3.25 | 2.31% |
| DIV 4 | Masonry | $ 1,520,688.00 | $ 9.28 | 6.57% |
| DIV 5 | Structural and Misc. Steel | $ 470,160.00 | $ 2.87 | 2.03% |
| DIV 6 | Woods and Plastics | $ 592,500.00 | $ 3.61 | 2.56% |
| DIV 7 | Thermal and Moisture Protection | $ 778,400.00 | $ 4.74 | 3.36% |
| DIV 8 | Doors and Windows | $ 1,517,100.00 | $ 9.25 | 6.56% |
| DIV 9 | Finishes | $ 1,888,399.20 | $ 11.52 | 8.16% |
| DIV 10 | Specialties | $ 310,200.00 | $ 1.89 | 1.34% |
| DIV 11 | Equipment | $ 372,000.00 | $ 2.27 | 1.61% |
| DIV 12 | Furnishing | $ 238,800.00 | $ 1.46 | 1.03% |
| DIV 13 | Special Construction | $ - | $ - | 0.00% |
| DIV 14 | Conveying Systems | $ 90,000.00 | $ 0.55 | 0.39% |
| DIV 15 | Mechanical Systems | $ 3,888,492.00 | $ 23.72 | 16.81% |
| DIV 16 | Electric | $ 3,707,414.52 | $ 22.62 | 16.03% |
| | Total Construction Costs: | $ 17,825,814 | $ 108.74 | 77.06% |
| | | | | |
| | PLUS COST OF LOOSE FURNISHINGS | $ 820,330.00 | $ 5.00 | 3.55% |
| | PLUS DEMOLITION OF ADDITIONS | $ 59,640.00 | $ 0.36 | 0.26% |
| | PLUS HAZARDOUS MATERIALS ABATEMENT | $ 969,739.00 | $ 5.92 | 4.19% |
| | PLASTER & DRWALL REPLACEMENT AS A RESULT OF HAZARDOUS MATERIALS ABATEMENT | $ 300,000 | $ 1.83 | 1.30% |
| | PLUS WARM, SAFE AND DRY | $ - | $ - | 0.00% |
| | PLUS NON-CONSTRUCTIONS COST @ THE TOTAL RATE OF 15.81% | $ 3,158,130.14 | $ 19.26 | 13.65% |
| | Total Construction Cost Per S.F: | $23,133,652.84 | $ 141.12 | 100.00% |

| | |
|---|---|
| **Total Project Cost:** | $ 23,133,653 |
| **Total Construction Area S.F:** | 163,933 |
| **Total Project Cost Per S.F:** | $141.12 |

# Reason, not rhetoric, preserves old schools

Historic preservation pays.

Ask Stephanie Hightower.

The Columbus Board of Education president will tell you that the district's plan to save many of its oldest buildings helped persuade voters to approve a $392 million bond issue to rebuild 26 schools and renovate 12 others.

ALAN MILLER

"It played a huge role in how the election came out," she said.

The preservation plan wasn't the district's first choice. Attempting to follow the state's one-size-fits-all program for helping districts with the cost of renovation and construction, the Columbus district was ready to demolish many of the city's landmark schools.

Enter the preservationists.

They came not with the shrill voices and caustic rhetoric that have doomed past generations of preservation activists. They came with open minds, tape measures and a desire to find solutions to the big problem of making old buildings useful as modern centers of learning.

"If we had not engaged them in such an open process, then we probably wouldn't have gotten some of the support we obtained in the election — especially in Clintonville," Hightower said. The neighborhood has repeatedly pushed for preservation of its school buildings.

The preservationists, she said, "came with solutions that were credible."

And in some cases, saving a building was cheaper than replacing it.

The Columbus Landmarks Foundation led the effort. It pulled together almost 30 experts — designers, architects and preservation consultants — who reviewed documents, met with parents, talked with teachers and others in the district, and studied state regulations. Most donated their time — hundreds of hours worth up to $100,000, if anyone had been keeping count.

"They worked the cost of plumbing, heating, electrical service, new windows, doors, classrooms, gymnasium spaces and separate lunchrooms, security, and handicapped-accessibility," said Judith B. Williams, a Columbus historic-preservation consultant who worked on the project.

They used grants from the Trust for Historic Preservation and a preservation arm of the National Park Service to cover some expenses. In return, they will offer what they learned to other school districts. Their hope is that the path they paved in Columbus will lead to the preservation of hundreds of school buildings in communities across the state and perhaps the nation.

"Historic preservation sells," said Kate Mott Matheny, executive director of the Landmarks Foundation. "People like old schools in their neighborhoods."

East High School is among the group's successes, Matheny said. Before the preservationists got involved, district officials discussed tearing down most or all of the 80-year-old building on E. Broad Street.

But architects and consultants showed how it could be renovated to preserve its historic character and meet modern demands. The state, for example, requires a gymnasium of at least 13,000 square feet for high schools with enrollment of about 1,000 students. East High has two with about 4,000 square feet each. So the consultants figured a way to use the existing gym space to meet other needs, such as

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a lunch room, and designed a new gym.

One of the most important discoveries the group made, Matheny said, is that the state formula for calculating the cost of new school buildings didn't account for the cost of razing the old building — a significant expense. Once demolition was factored, new construction often became more expensive than renovation.

State bureaucrats also relaxed rules that required all wooden structures in old buildings to be replaced. Instead those structures could remain if additional fire-safety measures were taken.

The group analyzed 56 schools and focused on the 30 that were viewed as most worthy of saving because of their construction and design. All but a couple are being saved.

"The Landmarks Foundation has always persevered by keeping in mind what is reasonable," Matheny said.

With billions being spent in Ohio to improve school buildings, the potential for demolition of old buildings is real. That's why it is important that the Columbus Landmarks Foundation share what it learned with other school districts.

The group plans to do that through its grant partners, which will publicize the Columbus effort via the Internet within the next few weeks.

"If they can put it in a bottle and take it on the road, they should do it," Hightower said.

She's certain Columbus schools will continue to seek the guidance of the preservationists during the district's 15-year reconstruction program.

"It's a new era for Columbus Public Schools, in that you'll see more of these partnerships in the future," Hightower said. "It's important for us to say we don't have all the answers."

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